MONTANA BOARD OF MILK CONTROL

MARKET ADMINISTRATION & INDUSTRY REPORT

FISCAL YEAR 2018
ENDED JUNE 30, 2018

SEPTEMBER 2018

MONTANA DEPARTMENT OF LIVESTOCK

MILK CONTROL BUREAU

CHAD LEE & MARK CURTIS

MONTANA BOARD OF MILK CONTROL

MARKET ADMINISTRATION & INDUSTRY REPORT

FISCAL YEAR 2018
ENDED JUNE 30, 2018

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The purpose of the Milk Control Bureau collecting and reporting information on Montana's milk industry is to provide insights and objective quantitative information to the Board of Milk Control to assist it in monitoring and understanding the industry to support policy development and deliberations.

The Milk Control Act provides powers to the Board of Milk Control to supervise, regulate, and control the milk industry. The act requires the Montana Department of Livestock to provide staff to assist in investigating matters, bring proceedings to enforce orders of the board, and assist in technical, enforcement, and regulatory activities.

The Milk Control Act includes a number of specific provisions enacted to support policy goals. Among these are

- mandatory licensing of businesses that produce or distribute milk in Montana;
- subjecting milk sold in Montana to assessments to fund the administration and enforcement of the act;
- establishment of minimum prices to be paid for raw milk according to how the milk is utilized, referencing federal milk classifications;
- authorization of the establishment of a quota supply control system and a statewide pooling market system;
- authority to govern fair trade practices, setting forth four specific trade practice prohibitions;
- expression of legislative intent that milk produced outside of state is subject to the Milk Control Act the instant that the milk is within the state and becomes subject to regulation by the state; and
- statement that the act does not supersede or interfere with federal law regulating interstate commerce.

Significant activity transpired for the Board of Milk Control, the Producer Committee, and the Milk Control Bureau in fiscal year 2018. The board met five times and conducted substantive meetings. The board selected Dairy Technomics LLC to conduct a milk market regulation study, which commenced in December 2017 and was completed with an in-person presentation of the final report to the board on June 25, 2018. Following completion of the study, the board distributed a survey to producers and processors to allow those groups to rate the importance of addressing the study's recommendations. On July 21, 2017, the board adopted new rules, rule amendments, and rule deletions in a major rulemaking (numbered MAR 32-17-282 in the Montana Administrative Register). The rulemaking provided a definition for "classes of utilization", made related adjustments to administrative rules pertaining to surplus milk sales, restructured all milk control administrative rules into a single chapter, and made several changes to make the administrative rules more understandable. The rulemaking went into effect on August 1, 2017. The board amended Administrative Rules of Montana (ARM) 32.24.450 (in rulemaking MAR 32-18-288) to establish milk control assessment rates for fiscal year 2019 and establish milk equivalent conversion

factors to be used in the calculation of assessments on the sales of manufactured dairy products. The rulemaking went into effect on July 1, 2018. On June 25, 2018, the board voted to propose amendments to ARM 32.24.480 (in rulemaking MAR 32-18-290) to amend the Class II and Class III producer price formulas. On September 7, 2018, the board adopted the amendments as proposed. The rulemaking went into effect on September 19, 2018 and will first impact prices for milk produced in October 2018. In amending the Class II and Class III price formulas, the board addressed one of the most readily actionable recommendations made in the study and addressed concerns over the Class III price formula that came to its attention in August of 2016 and was the subject of an informal petition received from producers in December of 2016. The adopted price formulas would have increased Montana producers' revenue by 4.4% in the 2015 – 2017 period, had the fully transitioned formulas been in place at that time. This would have increased the average annual value of pool milk for the period from $45.95 million to $47.99 million. The increase in value primarily is derived from the change in the Class III butterfat price, which would have increased by 23.5%. Montana's Class II and Class III price formulas were last amended in 1998, when relatively small changes were made to formula structures established in 1967. The new Class III butterfat price formula addresses a characteristic of the (now former) structure of the Class III butterfat price formula that caused the Montana Class III butterfat price to be substantially lower than Class III butterfat prices in most other regulated markets in the United States and for which the difference between the Montana and federal Class III butterfat price increased as national butter prices increased. At the same time, the Montana Class III butterfat price is discounted by about 4% relative to the federal Class III butterfat price to reduce Montana processors' risk of market volatility of having an advanced price formula and to encourage expansion of Class III processing in Montana. Bureau highlights include work supporting the state procurement process for the milk market regulation study; providing extensive informational assistance to support Dairy Technomics in carrying out the study; developing recommendations for milk equivalent conversion factors for use in calculating assessments on manufactured dairy products that were adopted in the amendment of ARM 32.24.450; work supporting the proposal to amend the Class II and Class III producer price formulas; and moving the bureau office to 1404 8th Avenue in Helena, gaining a much-improved office space and achieving significant savings in rent.

The majority of milk produced in Montana is utilized as fluid milk consumed in Montana. In fiscal year 2018, Montanans consumed an estimated 20.5 million gallons of fluid milk, 83% of which originated from Montana bottling plants using milk supplied by Montana dairy farmers. The next largest use of Montana-origin milk is ice cream type products of which an estimated 5.6 million gallons was consumed in Montana, 40% of which was manufactured by Montana plants. Approximately 8% of Class II fluid products (half and half, cream, and creamers) consumed in Montana originated from Montana plants. Montana plants account for only small percentages of all other dairy products consumed by Montanans. The bureau began preparing dairy consumption estimates beginning with fiscal year 2015, and some trends are beginning to emerge. Consumption of Class I milk in Montana appears to be declining despite Montana having a modest rate of population growth. Additionally, it appears that the percentage of Class I milk consumed in Montana that originates from Montana plants is declining. In contrast, ice cream consumption and the percentage of ice cream that originating from Montana plants appears to be increasing. Consumption of fluid cream products appears to be increasing, but the percentage of fluid cream originating from Montana plants appears to be decreasing. Butter consumption in Montana is increasing; almost all butter consumed in Montana is imported from other states. The bureau

estimates that in fiscal year 2018, the bulk exports of cream by Montana plants could have produced 5.5 million pounds of butter; approximately 8.1 million pounds of butter were consumed in Montana. When comparing Montana consumption data with USDA per capita consumption estimates for dairy products, tourism may impact some of Montana's dairy consumption trends for products such as butter, fluid cream, and ice cream that are often served by or used as ingredients by food establishments. The University of Montana Institute for Tourism & Recreation Research estimates that there will be over 13 million nonresident visits in 2018, an increase of nearly 11% over 2015 visits. The number of nonresident visits exceeds Montana's population (1.05 million in 2017), although the average duration of a nonresident visit in 2017 was approximately five nights.

In fiscal year 2018, Montana dairies produced 282 million pounds of milk, down approximately 4.5 million pounds from fiscal year 2017. Montana dairies produced 294 million pounds of milk in 2000. Montana milk production since 2000 has ranged from 276 million to 298 million pounds per year, averaging roughly 287.6 million pounds per year. Stable production has occurred despite a significant decline in the number of dairies (from 144 licensed dairies in fiscal year 2000 to 61 licensed dairies in fiscal year 2018) and a modest decline in the size of the milking herd (from 13,216 cows in fiscal year 2000 to 11,198 cows in fiscal year 2018). The average number of cows being milked per dairy has increased from 92 cows per dairy in fiscal year 2000 to 184 cows per dairy in fiscal year 2018.

Montana exported nearly 108 million pounds of packaged fluid products *(compared to imports of over 47 million pounds of packaged fluid products)* and exported 16 million pounds of bulk raw milk *(compared to imports of 21 million pounds of bulk raw milk)*. A provision in the Milk Control Act (81-23-302(10), MCA) specifies that distributors with processing facilities in the state shall *"whenever possible, purchase milk from Montana producers for the processing of products to be sold in this state if milk is available from Montana producers at the price set by the board."* The bulk milk imports are primarily attributed to Meadow Gold – Billings purchasing milk from Wyoming producers, processing the milk, and distributing it to the Wyoming market.

Montana's pool marketing system allows producers to receive milk prices based on the overall utilization of pool milk received by Montana's pool handlers. In fiscal year 2018, 59 pool dairies produced and delivered milk with an average butterfat content of 3.78% to three pool handlers and the Montana Correctional Enterprises dairy plant, receiving over $44 million at a weighted average price of $16.05 per hundredweight (cwt). Compared to fiscal year 2017, the weighted average price decreased by 1.9% and gross annual receipts decreased by 3.4%. While pool production has been stable since 2000, the value of production has increased and directly reflects milk prices. Milk prices have roughly followed the path of other commodities (such as feedstuffs) during the time period, increasing dramatically in 2007 and plunging in 2009 before recovering to price levels similar to the 2007 – 2008 time period, setting an all-time record high in 2014, and decreasing dramatically in 2015. The weighted average pool milk value per hundredweight was slightly higher in fiscal year 2017 and 2018 than in fiscal year 2016.

The value of pool milk is determined by production and utilization factors; factors related to the sale of surplus milk (milk in excess of pool handler's Montana Class I and Class II needs); and factors related to hauling costs absorbed by pool produces to transport bulk milk between pool plants.

Utilization Factors

Two major elements of utilization factors are (1) minimum prices for each class of milk and (2) the percentage of butterfat and skim (the portion of milk that is not butterfat) utilized in each class of milk. Minimum prices are highest for pool milk utilized as Class I milk consumed in Montana, which accounted for 47.1% of pool production in fiscal year 2018. The percentage of pool milk utilized as Class I milk consumed in Montana was 70.4% of pool production in 2000. The decline of Montana Class I utilization corresponds to the decrease in U.S. per capita consumption of fluid milk from 196 pounds per year in 2000 to 149 pounds per year in 2017. Other potential factors influencing this decline include increased availability and possibly market share of ultrapasteurized products (such as organic milk, lactose-free milk, and other specialty or branded products) that are imported into the state; loss of market share to a myriad of new beverage products, including plant-based milk substitutes; and changes in food distribution systems that have led to an increase in out-of-state distributors supplying Montana stores. Because production has been relatively steady and Montana dairy processors do not utilize a large percentage of pool milk for production of Class II and Class III products, the decrease in the percentage of pool milk utilized as Class I milk that is consumed in Montana is being offset by exports of surplus milk.

Adjustments to Utilization Value

Adjustments were made to the utilization value of the milk for intrapool hauling costs and surplus milk sales that reduced the pool utilization value by nearly $3 million (6.26%) or in other terms $1.07/cwt of production. Intrapool hauling costs are the costs of hauling milk between pool plants and are deducted from the pool utilization value. In fiscal year 2018, $524,114 was deducted from the pool utilization value to transport approximately 27.6 million pounds of milk from pool plants in Great Falls and Bozeman to Billings. Surplus milk is milk produced in Montana that is not consumed in Montana, excluding sales of cream to out-of-state markets, inventory, shrink, and dumped milk. Surplus sale factors allow for adjustments to the value of pool milk that reflect costs of marketing surplus milk. The majority of surplus milk is sold as packaged milk to out-of-state markets. In fiscal year 2018, the overall adjustment for surplus sales (bulk and packaged milk) totaled $2,439,533. Amendments to Montana's administrative rules that went into effect on August 1, 2017 impacted the calculation of the utilization of surplus milk and adjustments to the utilization value for surplus sales.

- Prior to August 1, 2017, packaged surplus milk was treated as a Class III utilization instead of a Class I utilization, and pool handlers paid more than the Montana Class III value for that utilization, resulting in a positive adjustment. Bulk surplus milk was treated as a Class III utilization, even if it was utilized at a Class I plant. Pool handlers paid the value received for the milk, less freight charges. Typically, the net value of bulk surplus milk was less than the Montana Class III utilization value, which resulted in a negative adjustment.
- Since August 1, 2017, packaged surplus milk (fluid milk) has been classified as Class I milk. Pool handlers pay the Montana Class I value less surplus sales adjustments. While the approach to valuing the utilization changed, the final utilization value for packaged surplus milk did not change. The negative adjustments offset costs associated with processing and marketing surplus milk that would have been marketed in a manner that is less economically advantageous to pool producers.

The initial utilization value for bulk surplus milk is based on how the receiving plant utilizes the milk. Pool handlers continue to pay the value received for the milk, less freight charges. Typically, the net value of bulk surplus milk is less than the initial Montana utilization value, which results in a negative adjustment.

MILK MARKET ADMINISTRATION

MILK CONTROL ACT PRIMER

Policy Purpose

The Milk Control Act (Montana Codes Annotated Title 81, Chapter 23) provides for the regulation of the milk market in Montana. The act establishes that regulation of milk is in the public interest because milk is a necessary food article; adequate supply is vital to the public; and health regulations do not provide for adequate supply. The act specifies that it is a policy of the state to stabilize the marketing of milk and promote, foster, and encourage intelligent production and orderly marketing of milk dairy products; elimination of speculation and waste; and making the distribution between producer and consumer as direct as can be efficiently and economically done.

The Milk Control Act's policy statement declaration in 81-23-102, MCA, includes, but is not limited to, the following summarized statements. The policy declaration has not substantively changed since 1939.

- Trade practices in the dairy value chain can threaten the health and welfare of the state's citizens and undermine the sanitary condition and purity of milk.
- Past experience shows that when regulation does not provide for an orderly and profitable marketing of milk, credit status of producers and distributors is adversely affected, resulting in broader economic damage.
- The unique nature of milk lends itself to regulation. Milk is a highly perishable commodity that is easily contaminated. It cannot be stored for a great length of time and must be produced and distributed fresh daily.
- The supply of milk is variable but must be produced on a uniform and even basis and yet accommodate fluctuating demand; therefore, a surplus of milk must be available to guarantee adequate supply to the public. Maintaining this surplus can be expensive; unless regulated, the unavoidable surplus can undermine the milk industry by causing producers to relax their diligence in complying with health and sanitary provisions.
- The natural law of supply and demand has been found inadequate to protect the industry. In the past, the adequacy of supply has been threatened by market conditions and trade practices within the industry.
- The supply and quality of milk are affected negatively unless the producers are guaranteed and ensured a reasonable profit on milk.

Elements of the Milk Control Act

The act describes its policy purpose and authorizes necessary regulatory infrastructure. The act provides powers to the Board of Milk Control to supervise, regulate, and control the milk industry. The act requires the Montana Department of Livestock to provide staff to the board to assist in investigating matters; bring proceedings to enforce orders of the board; and assist in technical, enforcement, and regulatory activities.

The act includes a number of specific provisions. Among these are the following:

- mandatory licensing of businesses that produce or distribute milk in Montana;
- subjecting milk sold in Montana to assessments to fund the administration and enforcement of the act;
- establishment of minimum prices to be paid for raw milk according to how the milk is utilized, referencing federal milk classifications;
- authorization of the establishment of a quota supply control system and a statewide pooling market system where producers are paid uniformly;
- authority to govern fair trade practices, setting forth four specific trade practice prohibitions against secret rebates and discounts; gifts to secure fluid milk and cream business; offering special prices to customers not available to all customers who purchase under like terms/conditions; and payment (by a distributor to a producer) of a price lower than applicable producer price;
- expression of legislative intent that milk produced outside of the state is subject to the Milk Control Act the instant that the milk is within the state and becomes subject to regulation by the state; and
- statement that the act does not supersede or interfere with federal law regulating interstate commerce.

BOARD OF MILK CONTROL – ACTIVITY IN FISCAL YEAR 2018

In fiscal year 2018, the Board of Milk Control held five meetings (August 31, 2017; November 8, 2017; December 14, 2017; April 30, 2018; and June 25, 2018). The board commissioned a major milk market regulation study that was completed in June 2018; deliberated over three major rulemakings; and appointed producer committee members for the 2018 and 2019 calendar years.

The budget for the 2019 biennium included $100,000 of spending authority for the board to conduct a milk market regulation study. Following the state procurement process, the board selected Dairy Technomics, LLC in November 2017 to conduct the study and prepare a report addressing the following five study components.

- Evaluation of Montana class price formulas and recommendations for relevant class price formulas
- Evaluation and recommendations regarding adjustments (to cost of milk purchased from Montana producers) for milk received by plants that is in excess of Montana market needs
- Evaluation and recommendations regarding transportation rates for bulk milk diverted to an alternative pool plant or hauled between pool plants
- Evaluation and recommendations regarding the effectiveness of quota system to improve producer blend prices
- Evaluation of the plausibility of expanded dairy processing and manufacturing in Montana and development of recommendations regarding Montana's class price formulas and quota system that could possibly facilitate plausible expansion

Dairy Technomics, LLC's efforts commenced in December 2017 with meetings with the board, meetings with Montana dairy industry participants and stakeholders, and tours of pool plants in Billings, Bozeman, and Great Falls. Dairy Technomics submitted a draft report in mid-April that was distributed to the board and Montana dairy industry participants and stakeholders so that feedback could be received before submitting the final report. The final report was received in early June and was distributed by the bureau to the board and Montana dairy industry participants and stakeholders to review prior to an in-person presentation by Dairy Technomics before the board on June 25, 2018. The final report and presentation were well received by the board and industry stakeholders. The final report included seventeen recommendations and can be downloaded from the bureau's public notice webpage (http://liv.mt.gov/Attached-Agency-Boards/Milk-Control/Public-Notices). The study did not recommend a single-phase rulemaking process that addressed all proposals concurrently and included options for dealing with certain issues. Following completion of the study, the board instructed the bureau to distribute a survey to producers and processors to allow those groups to rate the importance of addressing the study's recommendations. Upon further consideration of the results of this study, the discussion about the study, and the condition of the Montana dairy industry, the board may engage in rulemaking.

Rulemaking activity by the board in fiscal year 2018:

- Adoption of MAR 32-17-282 was published July 21, 2017. This was a major rulemaking proposed in fiscal year 2017 that provides for a definition for "classes of utilization", made related adjustments to administrative rules pertaining to surplus milk sales, restructured all milk control administrative rules into a single chapter, and made several changes to make the administrative rules more understandable. The most significant changes result in bottled fluid milk sold to markets outside of Montana being classified as a Class I utilization (with negative adjustments to the utilization value) instead of a Class III utilization (with positive adjustments to the utilization value). The rulemaking went into effect on August 1, 2017. The rulemaking implemented 2007 House Bill 431, which in August of 2016, the board became aware had not been implemented.
- Adoption of MAR 32-18-288 was published February 23, 2018. This rulemaking amended ARM 32.24.450 to establish milk control assessment rates for fiscal year 2019 and establish milk equivalent conversion factors to be used in the calculation of assessments on the sales of manufactured dairy products. The portion of the rulemaking that established milk equivalent conversion factors implemented 2017 House Bill 377.
- On June 25, 2018, the board voted to propose amendments to ARM 32.24.480 to amend Class II and Class III producer price formulas. Rulemaking proposal MAR 32-18-290 was published on July 5, 2018. Following comment period and a hearing on August 3, 2018, the board voted on August 22, 2018 to adopt the amendments as proposed. The notice of adoption was published September 7, 2018. The rulemaking went into effect on September 19, 2018 and will first impact prices for milk produced in October 2018.
    - The board proposed the amendments to:

- implement recommendations made in the study, including a recommendation for a transition period for changing the Class III butterfat price formula;
- replace Class II and Class III price formulas with price formulas that have underlying structures that are the same as, or similar to, markets that regulate prices of a majority portion of milk produced in the United States;
- address a characteristic of the (now former) structure of the Class III butterfat price formula that caused the Montana Class III butterfat price to be substantially lower than Class III butterfat prices in most other regulated markets in the United States and for which the difference between the Montana Class III butterfat price and federal Class III butterfat price increased as national butter prices increased;
- increase producer blend prices for raw milk to be more similar to prices received elsewhere in the United States;
- provide for an advance price announcement of all Class II and Class III prices to allow distributors to know raw material costs in advance of processing and marketing raw and processed milk products;
- maintain a negative Montana price differential for the Class III butterfat price to encourage expanded Class III processing in Montana; and
- reduce Montana processors' risk of market volatility of having an advanced Class III butterfat price formula that is based on an earlier and shorter reference price data collection period than what is used for the post-utilization butterfat price that sets the Class III and Class IV butterfat price for much of the United States milk market.

- In amending the Class II and Class III price formulas, the board addressed one of the most readily actionable recommendations made in the study and addressed concerns over the Class III price formula that came to its attention in August of 2016 and was the subject of an informal petition received from producers in December of 2016.
- Montana's Class II and Class III price formulas were last amended in 1998, when relatively small changes were made to formula structures established in 1967. The study did not recommend changes in Montana's Class I price formulas at this time.
- Analysis by the bureau indicates that the adopted price formulas would have collectively increased revenue to Montana producers in calendar years 2015 - 2017 by approximately 3.5% - 4.4%. In 2017, the proposed rules would have increased the overall blend value of all pool milk by $0.68/cwt - $0.84/cwt. The proposed Class III butterfat price formula would have accounted for nearly all of the increase. While Montana producers will realize an increase in revenue from the adopted price formulas, Montana distributors that operate pool plants will realize increased raw material costs. The approximate impact the adopted amendments would have had in 2015 - 2017 to distributors' costs compared to the rules that were in place would have increased processors' Class III butterfat

costs by 18.1% - 23.5%; increased processors' Class III skim milk costs by approximately 1%, increased processors' Class II butterfat costs by approximately 4%; and increased processors' Class II skim milk costs by approximately 1%. The average annual cost of milk for Montana's pool producers in 2015 – 2017 was $45.95 million. The adopted price formulas, once fully transitioned, would have increased the average annual cost by $2.04 million to $47.99 million.

The following table shows information about the board members and their terms of appointment. Appendix A provides additional information about the Board of Milk Control, its interaction with the Montana Department of Livestock, and differentiation of the roles of the department's Milk Control Bureau and the Milk & Egg Bureau.

Montana Board of Milk Control - Members

Name	Board Position	Residence	Term
W. Scott Mitchell	Chair	Billings	1/2015 – 1/2019
Jerrold A. Weissman	Vice-Chair	Great Falls	1/2015 – 1/2019
Brian C. Beerman	Member *(appointed February 26, 2016)*	Fairfield	1/2017 – 1/2021
Jim Parker	Member	Fairfield	1/2017 – 1/2021
Erik Somerfeld	Member	Power	1/2017 – 1/2021

The Board of Milk Control can be reached through the contact information listed below.

Milk Control Bureau
P.O. Box 202003
Helena, MT 59620-2003
(406) 444-2875 or LivMilkControl@mt.gov

PRODUCER COMMITTEE – ACTIVITY IN FISCAL YEAR 2018

Administrative rule established the Producer Committee. The committee reviews and approves transfers of quota and is authorized by rule to take over the responsibility from pool handlers of selling surplus milk (milk produced in excess of Montana processors' Class I and Class II milk needs). Pool handlers may also relinquish the responsibility to market surplus milk to the committee.

In fiscal year 2018, the Producer Committee met four times (October 31, 2017; April 4, 2018; June 5, 2018; and June 27, 2018) to elect a chair and vice chair; consider six quota transfer requests, discuss dairy closures, and receive updates on progress of the milk market regulation study from the bureau. All meetings were held via conference call.

The following tables shows the committee's membership for the two-year term that expired on December 31, 2017 and the two-year term that expires on December 31, 2019. The committee members for the 2018 – 2019 term were appointed by the board at December 14, 2018 Board of Milk Control Meeting when the board reviewed committee applications. In its April 4, 2018

meeting, the committee elected David Miller to serve as the committee chair and elected Sam Hofer to serve as the committee vice-chair.

Producer Committee Members 2017 – 2018 Term:

Producer Name	Committee Position	Pool Plant Receiving Milk	Dairy Name
David Miller	Chair	Darigold - Bozeman	Montana Correctional Enterprises Dairy
Sam Hofer	Vice-Chair	Meadow Gold – Great Falls	Surprise Creek Colony Dairy
Tim Huls	Member	Darigold – Bozeman	Huls Dairy
Nelson Kamerman	Member	Darigold - Bozeman	Dairyland Farms
Mark Kleinsasser	Member	Meadow Gold – Billings	Mountain View Colony Dairy
Ruben Wurz	Member	Meadow Gold – Great Falls	Big Stone Colony Dairy
Andrew Wipf	Member (serving as At-Large Committee Member)	Meadow Gold – Great Falls	Big Sky Colony Dairy

Producer Committee Members 2018 – 2019 Term:

Producer Name	Committee Position	Pool Plant Receiving Milk	Dairy Name
David Miller	Chair	Darigold - Bozeman	Montana Correctional Enterprises Dairy
Sam Hofer	Vice-Chair	Meadow Gold – Great Falls	Surprise Creek Colony Dairy
Tim Huls	Member	Darigold – Bozeman	Huls Dairy
Nelson Kamerman	Member	Darigold - Bozeman	Dairyland Farms
Mark Kleinsasser	Member	Meadow Gold – Billings	Mountain View Colony Dairy
Andrew Wipf	Member	Meadow Gold – Great Falls	Big Sky Colony Dairy
Ruben Wurz	Member (serving as At-Large Committee Member)	Meadow Gold – Great Falls	Big Stone Colony Dairy

LICENSING SUMMARY

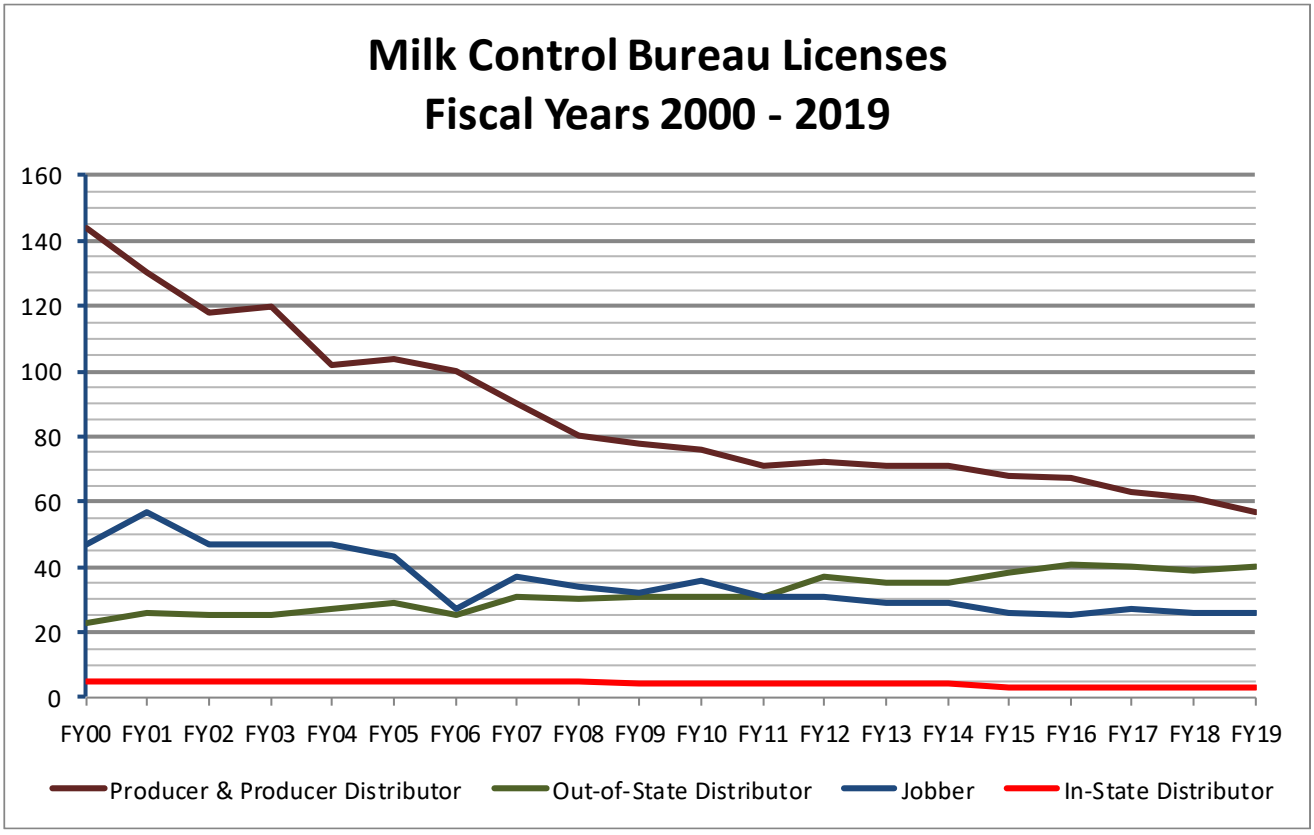
The Milk Control Bureau issues licenses to producers, producer-distributors, distributors, and jobbers (a class of distributors that purchase and resell milk). The following table shows the number of licenses issued in fiscal year 2018 for each type of business. Licenses are issued on an annual fiscal year basis (July 1 – June 30). By statute, the license fee is two dollars per license, and the fees are deposited into the state general fund.

Licenses Issued for Fiscal Year 2018

License Type	Number of Licenses
Producer	58
Producer-Distributor	3
In-State Distributor	3
Out-of-State Distributor	39
Jobber	26

The following chart shows the number of licenses issued for each license type for fiscal year 2000 through fiscal year 2019, combining the number of producers and producer-distributors. The chart reflects consolidation affecting the milk industry with a significant decline of licensed producers, a decrease in in-state distributors, a decline in the number of jobbers, and an increase in the number of out-of-state distributors. Starting in fiscal year 2015, Montana Correctional Enterprises was licensed as a producer-distributor instead of an in-state

distributor. Had the business been licensed as a producer-distributor in prior years, the number of in-state distributor licenses would have been reduced by one. The change of significance in the number of in-state distributors occurred after fiscal year 2008, when Meadow Gold did not renew its in-state distributor license for its Kalispell facility.



ADMINISTRATIVE ASSESSMENTS AND COLLECTION

Administrative assessments are levied on sales of milk by Montana producers, producer-distributors, in-state distributors, and out-of-state distributors to secure funds to administer and enforce the Milk Control Act. The assessments are classified as special revenue and are the sole source of funding for the Board of Milk Control and the Milk Control Bureau.

Fiscal Year 2018 Assessment Rates by License Type

License Type	FY2018 Assessment Rate
Producer	$0.025/cwt
Distributor	$0.025/cwt
Producer-Distributor	$0.050/cwt

Assessment Rates & Collection – Changes for Fiscal Year 2019

Effective for fiscal year 2019, administrative assessment rates will increase. Assessment rates for producers and distributors will increase to $0.03/cwt, and assessment rates for producer-distributors will increase to $0.06/cwt. The rate assessment increase begins with July 2018 milk sales.

Additionally, amendments to ARM 32.24.450 will be in effect beginning July 1, 2018 that establish in administrative rule the milk equivalent conversion factors to be used in calculating assessments for sales of manufactured dairy products. Milk equivalent conversion factors are in units of pounds of milk per gallon of product for fluid milk products, fluid cream products, and ice cream type products. Milk equivalent conversion factors are in units of pounds of milk per pound of product for cottage cheese products, sour cream products, yogurt type products, butter, cream cheese, and hard cheese. The milk equivalent conversion factors are based on total milk solids in products. Milk is 12.45% milk solids by weight and consist of proteins, lactose, butterfat, and minerals. For a product, the milk solids per gallon or pound figure is divided by 12.45% to calculate the milk equivalent weight per gallon or pound of the product. A hundredweight (cwt) of milk weighs 100 pounds. While the assessment rate change will increase milk control assessment revenue, the change in milk equivalent conversion factors (compared to past practice) will collectively decrease milk control assessment revenue to the extent that the bureau estimates milk control assessment revenue will be $20,000 less in fiscal year 2019 than fiscal year 2018.

SELECTED MILK CONTROL BUREAU HIGHLIGHTS

The following bullet points are selected highlights of bureau activity in fiscal year 2018 that are in addition to its regular ongoing activities (price announcements, pooling / blend price calculations, auditing, licensing, assessment collection, statistical database maintenance, preparing an annual report, maintaining quota records, and providing support to the board and to the Producer Committee).

- The bureau worked with the State Procurement Bureau (SPB) and the board to develop the request for proposal (RFP) for the milk market regulation study; contacted consultants to inform them of the pending publication of the RFP and their interest and availability; helped facilitate the proposal review process; performed reference checks; worked with legal counsel and SPB to prepare the contract for the study; organized meetings and tours to help Dairy Technomics meet Montana dairy industry stakeholders; and provided extensive informational assistance to support Dairy Technomics carry out the study. The bureau distributed the draft report to pool dairies and pool plants so that they could review the report and provide feedback prior to Dairy Technomics' final draft. The bureau distributed the final draft report to pool dairies, pool plants, and other stakeholders two weeks in advanced of the in-person presentation of the report to the board to provide opportunity for these parties to provide comment to the board on the study and to aid them in preparing questions to direct to Dairy Technomics at the presentation.
- The bureau developed the approach and assembled information necessary to establish milk equivalent conversion factors that are set in administrative rule by ARM 32.24.450 for use in calculating milk control assessments levied on sales of manufactured dairy products. Prior to the board's proposal of rules establishing these factors, the bureau distributed information about its recommendations to the board and to the affected industry to provide opportunity for distributors to learn about the approach and offer feedback before rulemaking commenced.

- The bureau drafted the proposal to amend the Class II and Class III price formulas in ARM 32.24.480 and drafted an informative small business impact statement to help the board and industry participants understand the proposed changes and their impact. The bureau developed models to simulate milk utilization value calculations for 2015 through 2017.
- The bureau identified issues that may affect distributor reporting and pooling calculations if a pool plant were to begin processing organic milk.
- The bureau worked with a state-contracted vendor to develop an online payment system for distributors to pay milk control assessments and license fees. The system will become operational in September or October 2018.
- In September 2017, the bureau moved its Helena office from 1225 8th Avenue to 1404 8th Avenue, Helena, gaining a much-improved office space and achieving significant savings in rent.

ESTIMATE OF MONTANA DAIRY CONSUMPTION

DISCUSSION OF ESTIMATE METHOD & LIMITATION

The estimated dairy consumption for Montana is based on combining information from assessments reports submitted by pool handlers, producer-distributors, and out-of-state distributors. The forms gather different levels of information from each class of licensed distributor. Information from pool handlers and producer-distributors focuses on the weight of milk utilized. Information gathered from import reports from in-state and out-of-state distributors focuses on product volume or weight to which milk equivalent factors are applied to determine milk equivalent weight subject to administrative assessments. Because different sources of information are being combined, the information should be viewed as being an estimate.

Pool handlers (Meadow Gold and Darigold) and Montana Correctional Enterprises report how milk received is utilized in monthly reports submitted for pooling calculations. Pool handlers sell some bulk milk to other dairy manufacturers located in Montana. The utilization of this milk is attributed to the class of utilization thought to account for these manufacturers' utilization.

Producer-distributors report total milk produced and sold in reports submitted with payment of administrative assessments and report how the milk was utilized. In estimating dairy product consumption, product weights are estimated through calculations that use product density and milk equivalent factors.

All distributors report imports of dairy products.

The following tables show estimates of dairy consumption in Montana in terms of product consumed (gallons or pounds of product) and in terms of milk equivalent (estimated pounds of milk utilized to manufacture the products consumed). The milk equivalent weight of imported dairy products is calculated by multiplying the unit of product imported by the milk equivalent factors shown in the table labeled "Dairy Product Milk Equivalent Factors Used by the Milk Control Bureau". In fiscal year 2018, different milk equivalent conversion factors will be used.

FISCAL YEAR 2018: MONTANA ESTIMATED DAIRY CONSUMPTION (BY PRODUCT VOLUME OR WEIGHT)

Class / Type / Product	Products from Montana Plants	% of Product Total from Montana	Products from Out-of-State Plants	% of Product Total from Out-of-State	Total Consumption Estimate
CLASS I (gallons)					
White & Flavored Milk	17,067,435	83.07%	3,479,511	16.93%	20,546,947
Buttermilk			108,649	100.00%	108,649
Eggnog			54,285	100.00%	54,285
CLASS II					
Fluid/Whip (gallons)					
Half and Half	58,460	6.35%	862,546	93.65%	921,006
Whipping Cream	96,668	14.75%	558,873	85.25%	655,541
Creamers			343,204	100.00%	343,204
Aerosol Whip			113,244	100.00%	113,244
Uncultured (gallons)					
Ice Cream / Mix / Ice Milk / Novelties	2,264,868	40.31%	3,353,369	59.69%	5,618,237
Frozen Yogurt / Mix			153,488	100.00%	153,488
Cream for Candy Products	13,943	100.00%			13,943
Cultured (pounds)					
Cottage Cheese	34,068	0.78%	4,355,474	99.22%	4,389,543
Sour Cream & Dressings			5,999,850	100.00%	5,999,850
Yogurt / Kefir	385,550	2.21%	17,072,631	97.79%	17,458,181
CLASS III (pounds)					
Cream Cheese			2,056,827	100.00%	2,056,827
Cheese	72,931	0.29%	25,080,567	99.71%	25,153,498
Butter	567	0.01%	8,091,931	99.99%	8,092,498

DAIRY PRODUCT MILK EQUIVALENT FACTORS USED BY THE MILK CONTROL BUREAU

Product	Milk Equivalent *(lbs of milk to make 1 lb of product)*	Milk Equivalent *(lbs of milk to make 1 gallon of product)*
White Milk / Flavored Milk		8.60 – 8.63
Buttermilk		8.62
Egg Nog		8.58
Whipping Cream		8.35 – 8.37
Half and Half / Creamers		8.55
Aerosol Whip		8.48
Ice Cream		3.51
Ice Milk / Frozen Yogurt / Novelties		3.54
Ice Cream Mix		7.01
Yogurt Mix		7.08
Cottage Cheese	5.67	
Dry Curd	7.33	
Sour Cream / Dips / Dressings / Sour Half and Half	1	
Yogurt / Kefir	1	
Cream Cheese	8.99	
Cheese	9.90	
Butter	21.80	

The amount of milk used to manufacture different products varies. One pound of cheese requires nearly ten pounds of milk because milk contains approximately 88% water, much of which is removed in the manufacturing process. Cows produce milk that has 3.5% - 4% butterfat content, with 3.67% butterfat considered to be a representative average. Butter has a minimum of 80% butterfat. Therefore, it takes many pounds of milk (nearly 22 pounds) to manufacture one pound of butter. Because milk equivalent factors for cheese and butter are high, the total milk equivalent of Class III products consumed by Montanans exceeds the milk equivalent of Class I and Class II products consumed by Montanans. The milk equivalent factors in the table are what were used for fiscal year 2018.

Different milk equivalent factors will be used in fiscal year 2019 in accordance with administrative rules that became effective July 1, 2018.

FISCAL YEAR 2018: MONTANA ESTIMATED DAIRY CONSUMPTION – BY MILK EQUIVALENT WEIGHT

Class / Type / Product	Products from Montana Plants *(lbs milk equivalent)*	Products from Out-of-State Plants *(lbs milk equivalent)*	Total Consumption Estimate *(lbs milk equivalent)*
CLASS I			
White & Flavored Milk	147,121,291	29,980,018	177,101,309
Buttermilk		936,559	936,559
Eggnog		465,761	465,761
TOTAL CLASS I	**147,121,291**	**31,382,337**	**178,503,628**
CLASS II			
Fluid/Whip			
Half and Half	499,830	7,374,772	7,874,602
Whipping Cream	808,142	4,670,639	5,478,781
Creamers		2,934,391	2,934,391
Aerosol Whip		960,307	960,307
Subtotal	**1,307,972**	**15,940,109**	**17,248,081**
Uncultured			
Ice Cream / Mix / Ice Milk / Novelties	13,685,084	12,296,245	25,981,329
Frozen Yogurt / Mix		979,045	979,045
Candy Products	116,426		116,426
Subtotal	**13,801,510**	**13,275,290**	**27,076,800**
Cultured			
Cottage Cheese	193,168	24,715,457	24,908,625
Sour Cream & Dressings		5,999,850	5,999,850
Yogurt / Kefir	385,550	17,072,631	17,458,181
Subtotal	**578,718**	**47,787,938**	**48,366,656**
TOTAL CLASS II	**15,688,200**	**77,003,337**	**92,691,537**
CLASS III			
Cream Cheese		18,490,871	18,490,871
Cheese	722,019	248,297,609	249,019,628
Butter	12,365	176,404,088	176,416,453
TOTAL CLASS III	**734,384**	**443,192,568**	**443,926,952**

SUMMARY

The majority of milk produced in Montana is utilized for fluid milk consumed in Montana. In fiscal year 2018, an estimated 20.5 million gallons of fluid milk was consumed in Montana, 83% of which originated from Montana bottling plants using milk supplied by Montana dairy farmers. The next largest use of Montana-origin milk is for ice cream type products. An estimated 5.6 million gallons of ice cream type products were consumed in Montana, 40% of which was manufactured by Montana plants. Approximately 8% of Class II fluid products (half and half, cream, and creamers) that were consumed in Montana originated from Montana plants. Montana plants account for only small percentages of all other dairy products consumed by Montanans. Production of these products outside of Montana is largely a function of industry dynamics that relate to scales of efficiency in manufacturing and placement of manufacturing facilities near areas with greater population or areas with larger supplies of milk.

The bureau began preparing dairy consumption estimates beginning with fiscal year 2015, and some trends are beginning to emerge. The estimated consumption of Class I milk products declined in fiscal year 2018 by 2.1% compared to the prior three years, in which estimated annual consumption was relatively steady. The percentage of Class I milk consumed in Montana that originated in Montana plants decreased by 1.4% compared to fiscal year 2017 and was nearly 3% lower than in fiscal year 2015. In contrast, ice cream consumption and the percentage of ice cream that originated from Montana plants both increased compared to fiscal years 2017 and 2015. Consumption of fluid cream products increased relative to fiscal year 2017, but the percentage of fluid cream that originated from Montana plants decreased. Comparison between fiscal year 2018 and 2017 consumption estimates for butter indicate an increase in consumption of approximately 5%.

The U.S. Census Bureau estimates that Montana's population in 2017 was just over 1.05 million. According to worldpopulationreview.com (accessed on September 25, 2018), Montana experienced modest population growth of approximately 1% per year from 2015 to 2017. When comparing Montana consumption data with USDA per capita consumption estimates for dairy products, tourism may impact some of Montana's dairy consumption trends for products such as butter, fluid cream, and ice cream that food service establishments serve or use as ingredients. The University of Montana Institute for Tourism & Recreation Research estimates that there will be over 13 million nonresident visits in 2018, an increase of nearly 11% compared to visits in 2015. The average duration of a visit in 2017 was approximately five nights according to the University of Montana Institute for Tourism & Recreation Research's *Preliminary 2017 Montana Nonresident Traveler Expenditures & Economic Contribution* report.

MINIMUM PRODUCER PRICES

CLASSIFIED PRICING

To aid in the orderly marketing of milk, many jurisdictions in the United States, starting in the 1930's, established price regulation systems that set prices for milk purchased from dairies based upon how the buyer (a processor) utilizes the milk. Currently in the Unites States, over 85% of all milk sold by dairy farms is subject to federal or state price regulation that uses classified pricing. Classified pricing systems have been adopted in a number of other western countries as well. Such systems help prevent situations in which producers are pitted against each other by processors to undercut prices, which can lead to a chaotic marketplace in which the supply and sanitary condition of milk becomes imperiled. Montana's milk classification system is similar to federal (USDA) milk classification. Class I utilization includes fluid milk products, including buttermilk and eggnog. Class II utilization includes fluid cream products, ice cream type products, cottage cheese, sour cream and yogurt. Class III utilization includes cheese and cream cheese. Class IV utilization includes butter and dried milk. Montana law allows the Board of Milk Control to combine milk classes, and Montana Class III utilization includes both Class III and Class IV utilizations. In Montana, Class III utilization also includes bulk milk inventory, dumped milk, and up to 2% shrinkage, with any shrinkage in excess of 2% of pool receipts being allocated to Class I utilization. Shrinkage is a term that describes milk received that is not accounted for by utilization or inventory. Shrink is unavoidable and typically is caused by processing losses and incidental waste. Until August 1, 2017, Montana classified sales of packaged fluid milk products to out-of-state markets as being a Class III utilization. Since August 1, 2017, these sales have been classified as a Class I utilization.

PRICE FORMULAS

The Milk Control Act requires that the Board of Milk Control establish formulas to calculate minimum prices to be paid for milk based upon classified utilization. During fiscal year 2017, the administrative rules that implement the classified pricing mandated by the Milk Control Act were established in ARM 32.24.301 and ARM 32.23.102(12). Beginning in August 1, 2017, the administrative rule that includes the price formulas will be in a new rule numbered ARM 32.24.480.

Montana Class I

Montana's Class I milk price formula adds a $2.55/cwt differential to the USDA Federal Order Base Class I price. The Montana Class I butterfat price is the Federal Order Advanced Butterfat Pricing Factor plus $0.0255/lb. The USDA Federal Milk Marketing Administration announces these prices in advance of the month of production. The federal announcement is generally made on the Wednesday following the first two full weeks of the month. The formulas used to calculate Montana Class I prices are shown in the following figure, using August 2015 as an example.

Calculation of Montana Class I Announced Prices for August 2015	
ARM 32.24.301(5): Federal Order Base Class I Price ($/cwt)	$16.28
ARM 32.24.301(5): Differential ($/cwt)	$2.55
CLASS I PRICE FOR MILK TESTING 3.5% BUTTERFAT ($/CWT)	**$18.83**
ARM 32.24.301(5): Federal Order Advanced Butterfat Pricing Factor ($/lb)	$2.1332
Differential: $2.55/cwt / 100 lbs/cwt ($/lb)	$0.0255
CLASS I BUTTERFAT PRICE PER POUND ($/LB)	**$2.1587**

Montana Class II & Class III

Montana's Class II and Class III milk prices are based on the last prices (market prices) reported prior to the 20th of the month in the National Dairy Market News Weekly Report published by USDA Agricultural Marketing Service. The report is generally published on the Friday of the second full week of each month. The administrative rules specify the use of the spray process nonfat dry milk solids price for the Central States area. The National Dairy Market News Weekly Report reports a low/high price range for nonfat dry milk; so an average is taken and used in the Montana Class II and Class III price formulas. The administrative rules specify the use of the Chicago area Grade AA butter price; this price is reported in the National Dairy Market News Weekly Report in a table labeled "CME Group Cash Trading". The formulas used to calculate Montana Class II and Class III prices are shown in the following figures, using August 2015 as an example. In fiscal year 2019, Montana's Class II and Class III price formulas changed on September 19, 2018 and first affected the October 2018 price announcement.

Calculation of Montana Class II Announced Prices for August 2015		
ARM 32.24.301(6): Average spray process dry milk solids (USDA Central Region Nonfat Dry Milk) ($/lb))	$0.8525	
ARM 32.24.301(6): Freight Adjustment ($/lb)	$0.0125	
Subtotal ($/lb)	$0.8650	
ARM 32.24.301(6): multiplied by 8.2 (lbs nonfat dry solids per cwt milk)		$7.0930
ARM 32.24.301(6): Last quote for Grade AA butter (Chicago Area Grade AA Butter Price) ($/lb)	$1.8400	
ARM 32.24.301(6): less a differential of $0.089	($0.0895)	
Subtotal ($/lb)	$1.7505	
ARM 32.24.301(6): multiplied by 4.2 (lbs butter per cwt milk)		$7.3521
Nonfat Dry Solids Price Component + Butter Price Component ($/cwt milk)		$14.4451
ARM 32.24.301(6): Less Make Allowance of 8.5% ($/cwt)		($1.2278)
CLASS II PRICE FOR MILK TESTING 3.5% BUTTERFAT ($/CWT)		**$13.22**

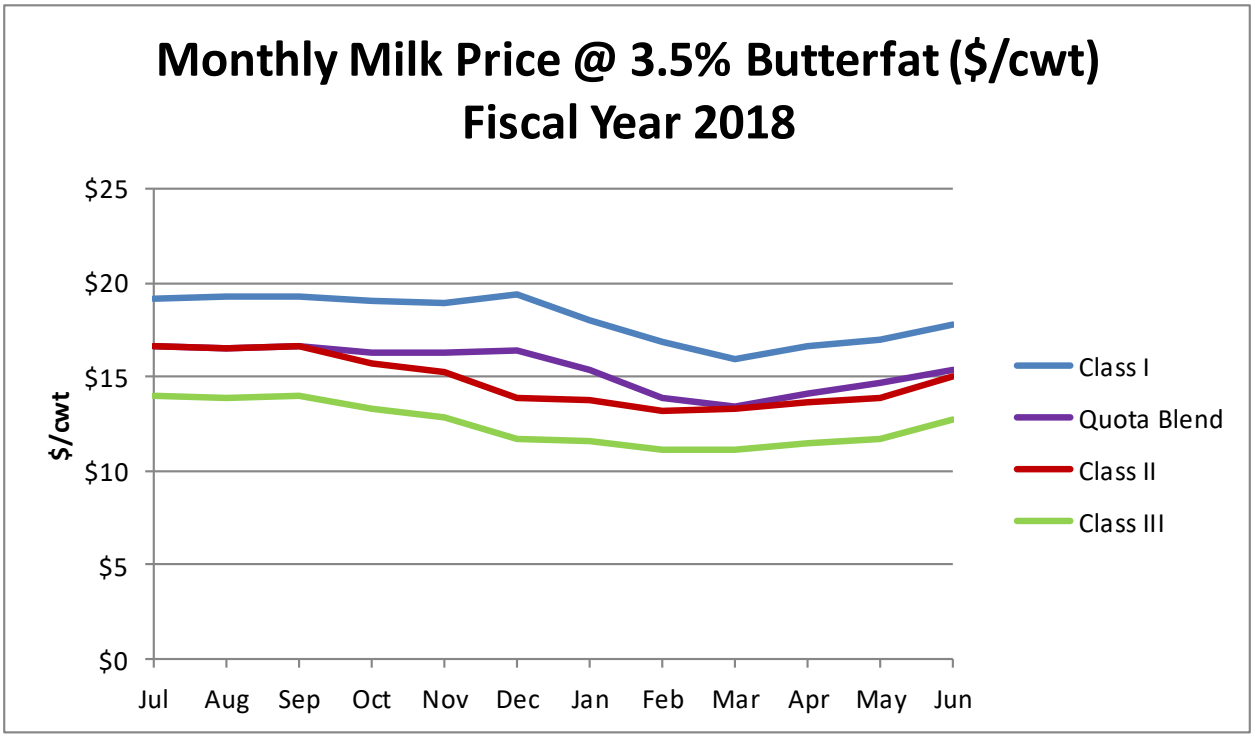
Calculation of Montana Class II Announced Prices for August 2015 - Continued	
ARM 32.24.301(6): Last quote for Grade AA butter (Chicago Area Grade AA Butter Price) ($/lb)	$1.8400
ARM 32.24.301(6): less a differential of $0.0895	($0.0895)
Subtotal ($/lb)	$1.7505
ARM 32.24.301(6): multiplied by 0.111	$0.1943
ARM 32.24.301(6): rounded to the nearest $0.005 ($/0.1% butterfat content)	$0.195
multiplied by 10 ($/% butterfat content = $/lb butterfat)	
CLASS II BUTTERFAT PRICE PER POUND ($/LB)	**$1.950**

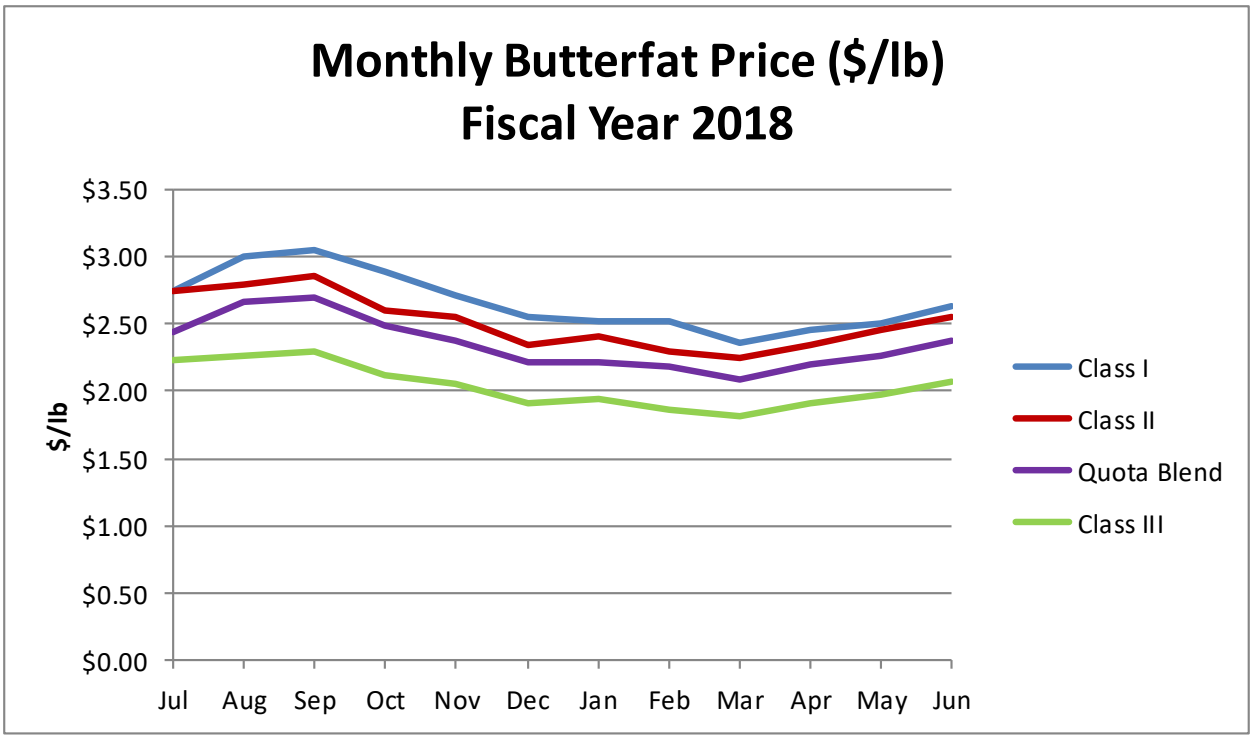
Calculation of Montana Class III Announced Prices for August 2015		
ARM 32.24.301(7): Last quote for Grade AA butter (Chicago Area Grade AA Butter Price) ($/lb)	$1.8400	
ARM 32.24.301(7): less a differential of $0.0895	($0.0895)	
Subtotal ($/lb)	$1.7505	
ARM 32.24.301(7): Less 10%	($0.1751)	
Butter Price Component: **CLASS III BUTTERFAT PRICE PER POUND ($/LB)**	**$1.5755**	
Average spray process dry milk solids (USDA Central Region Nonfat Dry Milk) ($/lb)	$0.8525	
ARM 32.24.301(6): Freight Adjustment ($/lb)	$0.0125	
Subtotal ($/lb)	$0.8650	
ARM 32.24.301(7): multiplied by 8.2 (lbs nonfat dry solids per cwt milk)	$7.0930	
ARM 32.24.301(7): less 17%	($1.2058)	
	$5.8872	
Nonfat Dry Solids Price Component: **CLASS III SKIM PRICE PER POUND ($/LB)**	**$0.0589**	
Class III BF Price/lb x 3.5 lbs butterfat per cwt milk:		
VALUE OF CLASS III BUTTERFAT AT 3.5 LBS		$5.5143
Class III Skim per lb x 96.5 lbs per cwt milk:		
VALUE OF CLASS III SKIM MILK AT 96.5 LBS ($)		$5.6811
CLASS III PRICE PER CWT FOR MILK TESTING 3.5% BUTTERFAT ($/CWT)		**$11.20**

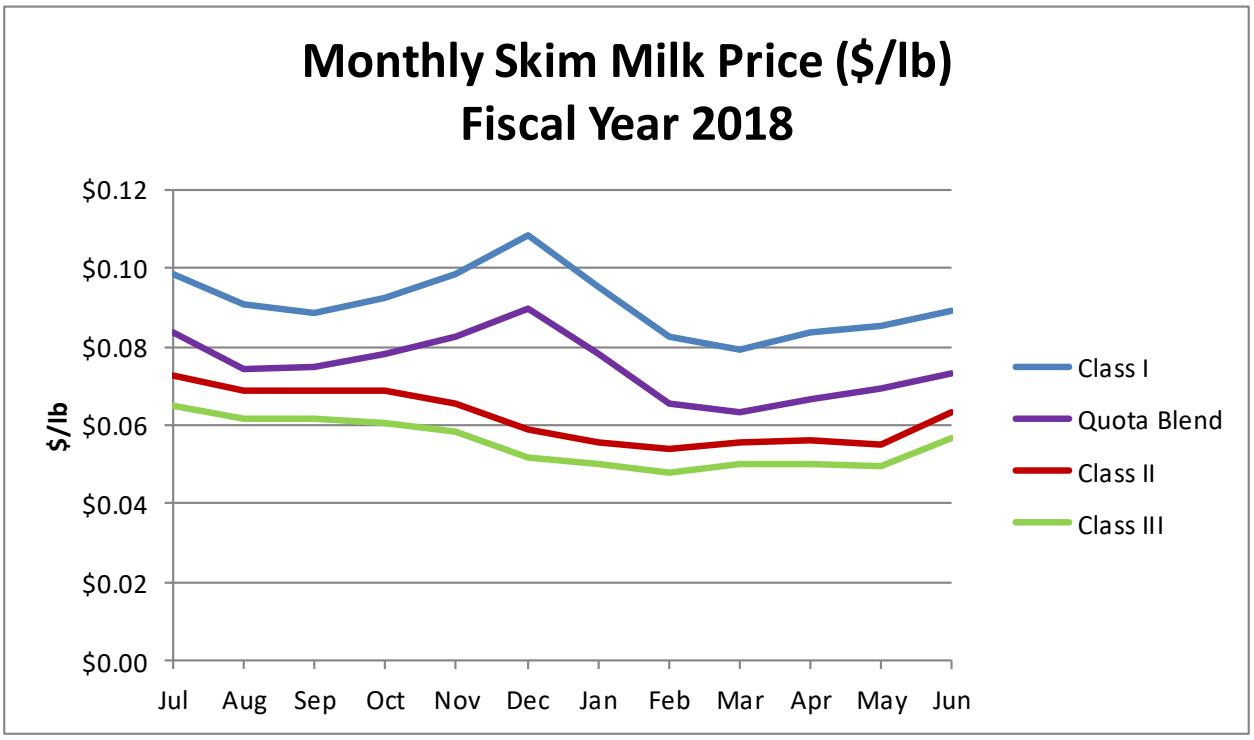
ANNOUNCED MINIMUM PRICES IN FISCAL YEAR 2018

Cows often produce milk that has 3.5% - 4% butterfat. The dairy industry often uses a reference price for milk having 3.5% butterfat. One hundred pounds of milk (a hundredweight, abbreviated "cwt") with 3.5% butterfat consists of 3.5 pounds of butterfat and 96.5 pounds of "skim". Skim consists of water (over 90% of skim weight) and solids that are not fat (lactose, protein, and minerals). In Montana, an individual producer is paid on the actual butterfat and skim produced by the dairy's herd for each month of production.

The charts below show announced minimum prices for months in fiscal year 2018 (July 2017 – June 2018) along with the calculated quota price based on actual milk utilization. Prices for milk at 3.5% butterfat were similar to fiscal years 2016 and 2017; however, prices in February – April 2018 were the lowest since the second half of fiscal year 2016. In general, skim milk prices of all classes were lower than in fiscal years 2016 and 2017 and reflect a trend of declining skim milk prices. While the record high monthly butterfat price was not set fiscal year 2018, average butterfat prices in fiscal year 2018 were the highest on record and reflect the long-term trend of increasing butterfat prices. Appendix C provides information on the reference prices used to calculate Montana's announced minimum prices.

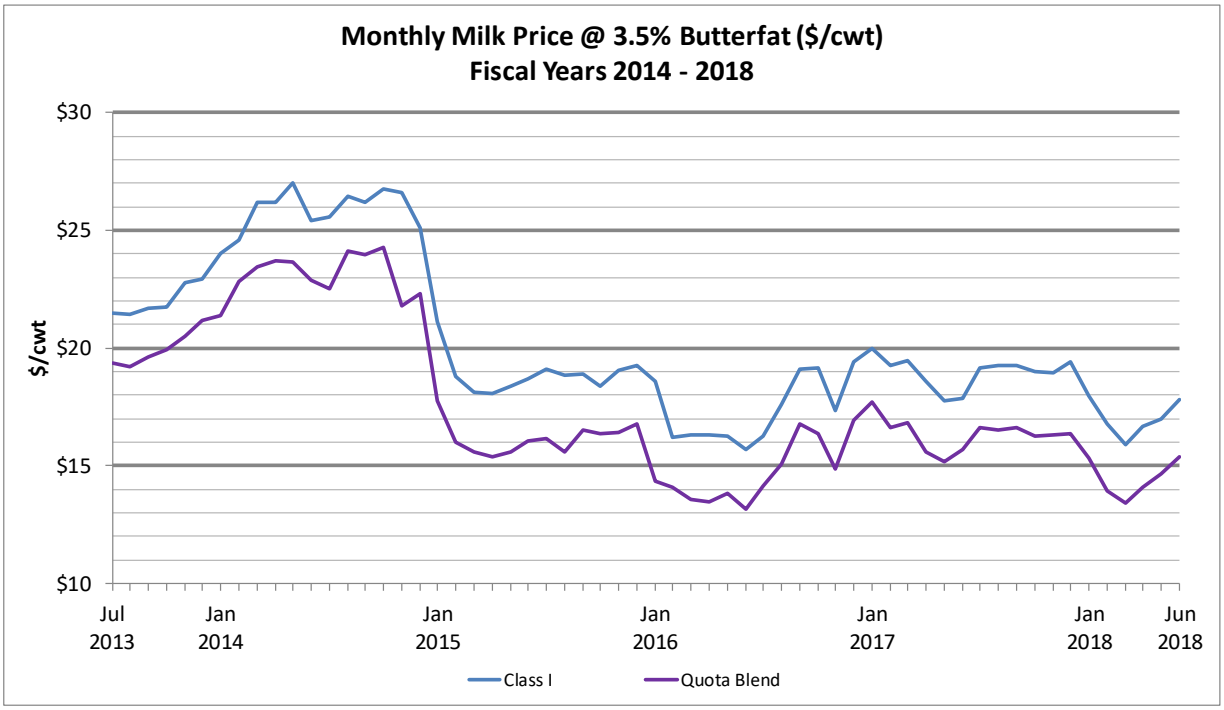


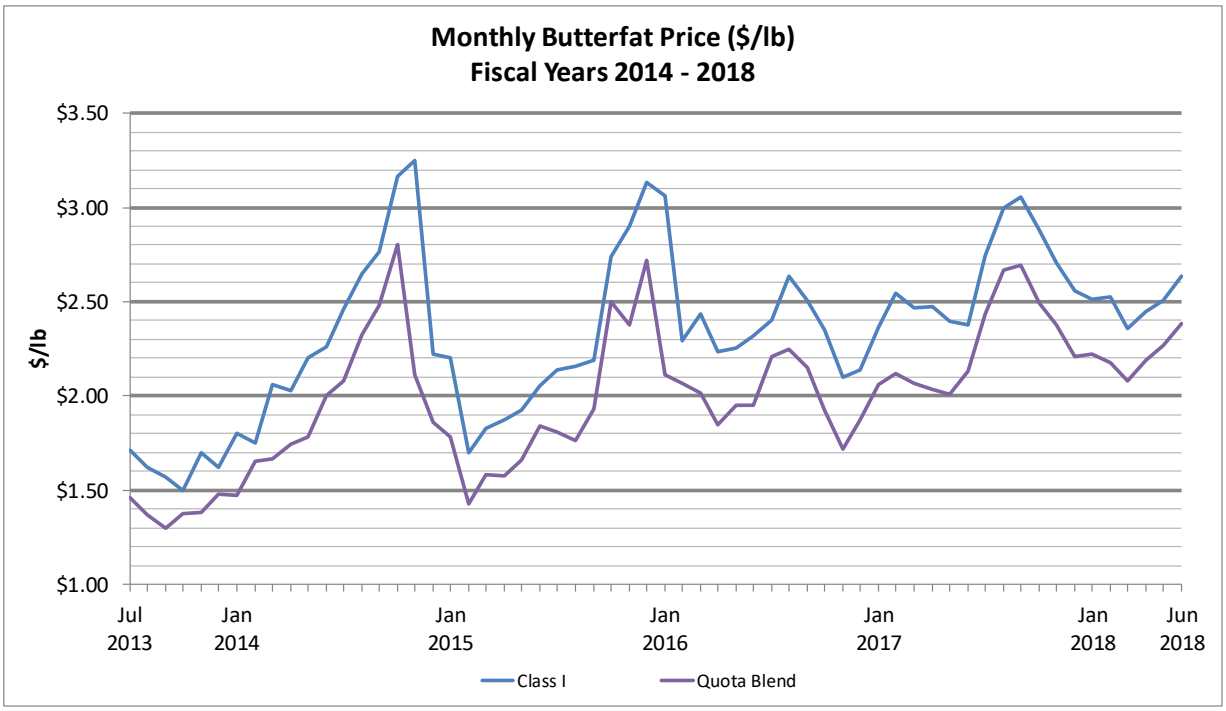

Monthly Butterfat Price ($/lb)
Fiscal Year 2018
$3.50
$3.00
$2.50
$2.00
$1.50
$1.00
$0.50
$0.00
$/lb
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Class I
Class II
Quota Blend
Class III

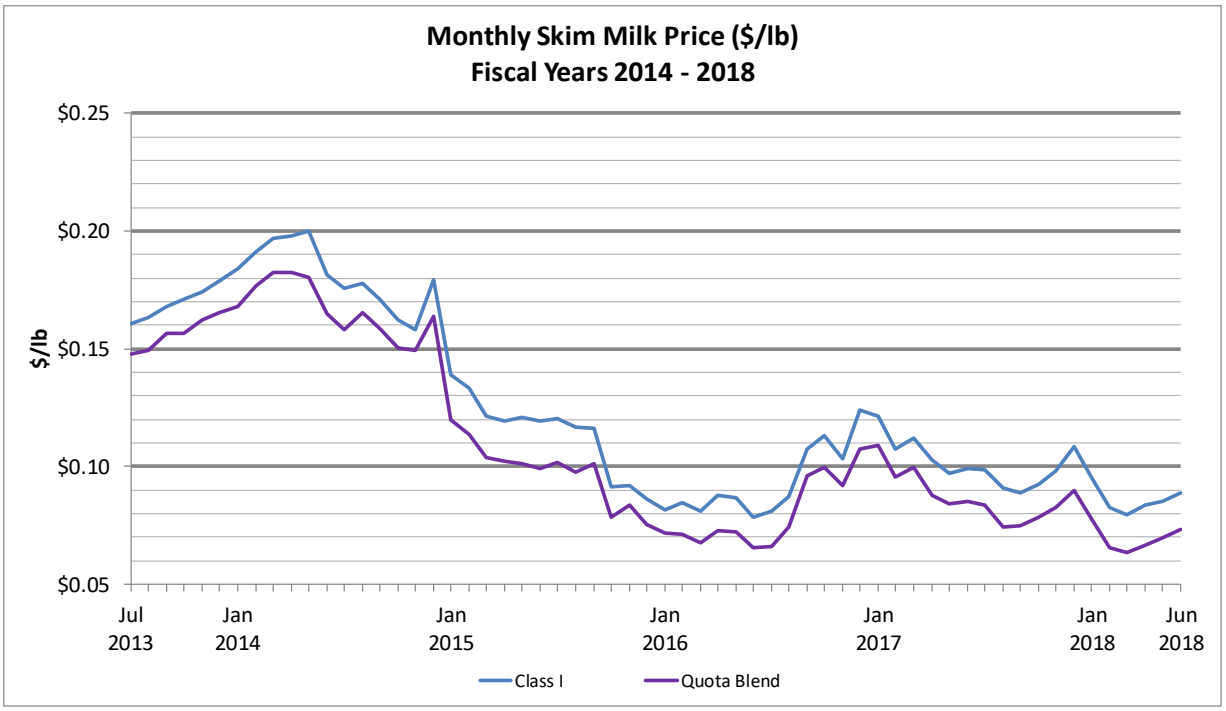

Monthly Skim Milk Price ($/lb)
Fiscal Year 2018
$0.12
$0.10
$0.08
$0.06
$0.04
$0.02
$0.00
$/lb
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Class I
Quota Blend
Class II
Class III

PRICE CHARTS JULY 2013 – JUNE 2018

The following charts show Montana Class I prices and Montana Quota Blend producer prices for milk containing 3.5% butterfat, butterfat component of milk, and skim component of milk. The prices received for milk with 3.5% butterfat in fiscal year 2018 were similar to fiscal years 2016 and 2017, with a trend of increasing butterfat prices roughly offsetting a trend of declining skim milk prices.



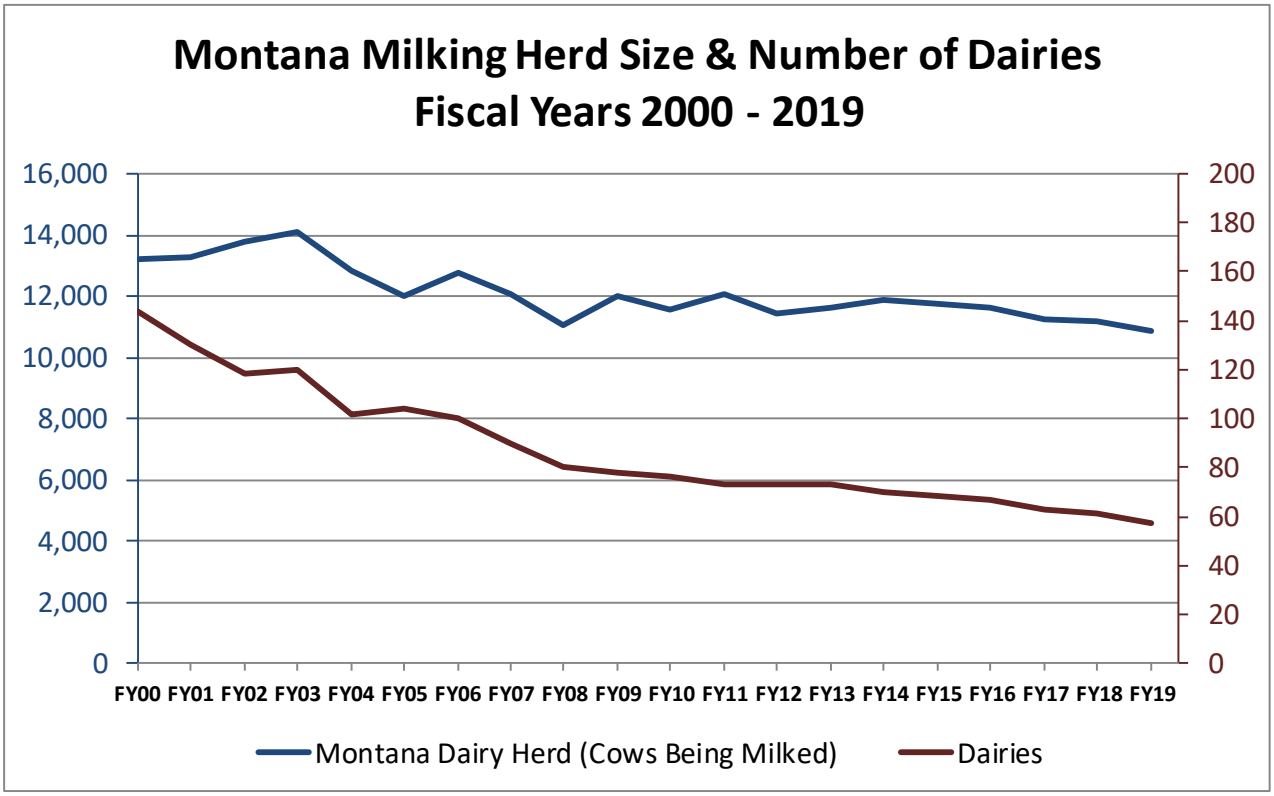


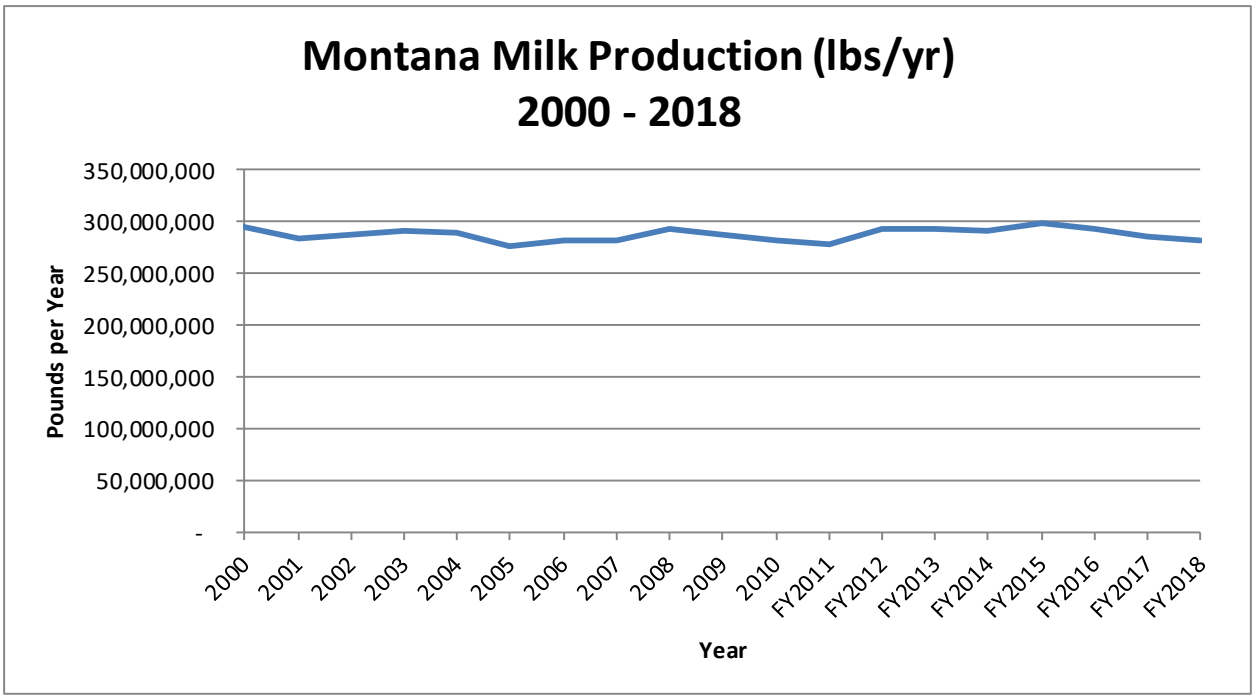

Monthly Skim Milk Price ($/lb)
Fiscal Years 2014 - 2018
$/lb
$0.25
$0.20
$0.15
$0.10
$0.05
Jul 2013
Jan 2014
Jan 2015
Jan 2016
Jan 2017
Jan 2018
Jun 2018
Class I
Quota Blend

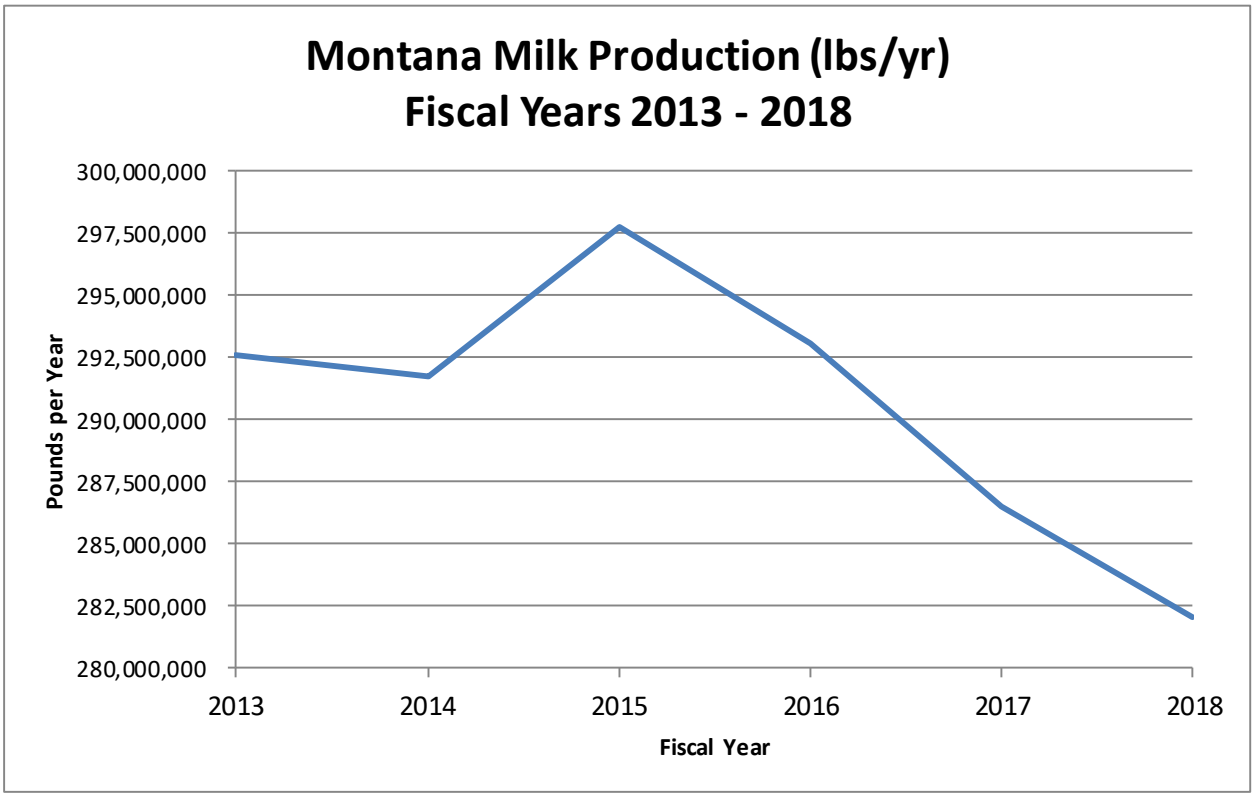
MONTANA MILK PRODUCTION

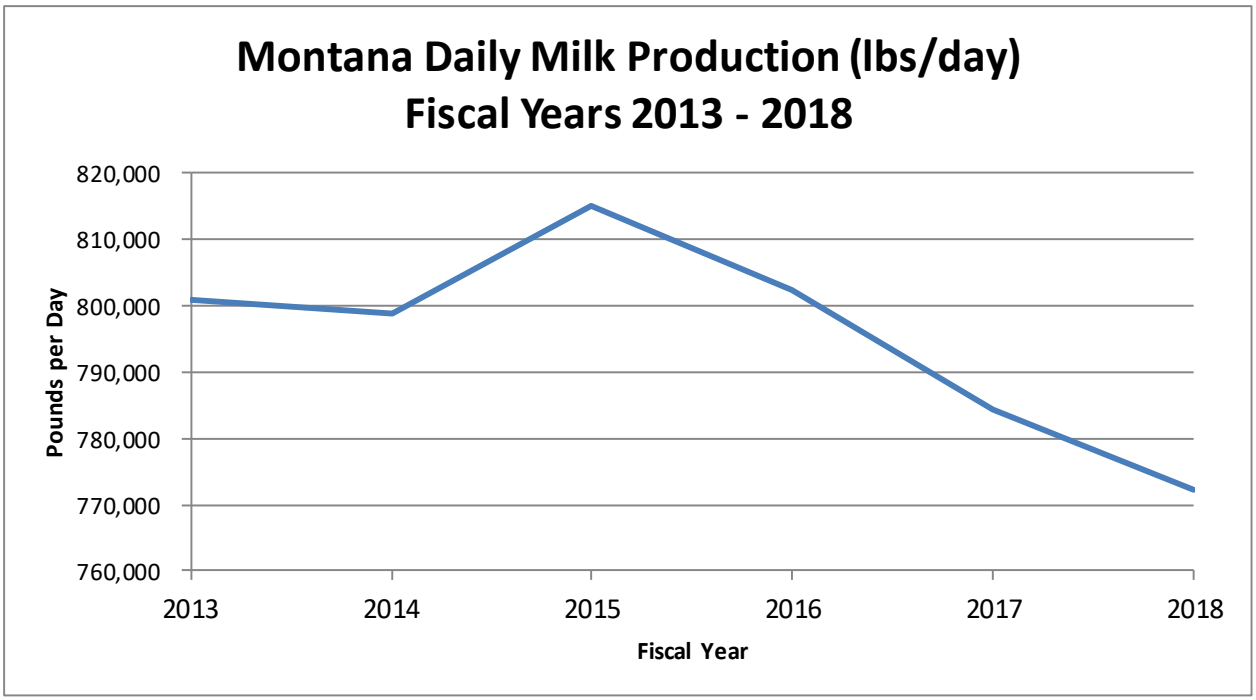
Dairies that participate in Montana's pool marketing system account for most of Montana's milk production. These dairies supply milk to Darigold's processing plant in Bozeman; Meadow Gold's processing plants in Great Falls and Billings. Montana Correctional Enterprise's dairy and processing plant in Deer Lodge are also included in pool statistics. Dairies that are licensed as producer-distributors account for the rest of Montana milk production. The map on page 30 shows the counties in which dairies are licensed to operate in fiscal year 2019.

The following charts show the size of Montana's dairy herd and the number of dairies licensed in fiscal year 2000 through fiscal year 2019, Montana milk production from 2000 through fiscal year 2018, and total milk production (per year and per day) for fiscal year 2013 through fiscal year 2018. The size of Montana's milking herd is based on information provided by producers and producer-distributors in annual license applications. From fiscal year 2000 to fiscal year 2018, the number of cows being milked declined by 15%, while the number of dairies declined by 58%. The average number of cows being milked per dairy increased from 92 cows per dairy in fiscal year 2000 to 184 cows per dairy in fiscal year 2018. The reduction in production is less than the reduction in herd size. Montana milk production in fiscal year 2018 was 4.2% lower than in 2000. Production in fiscal year 2018 was the lowest since fiscal year 2011 and was approximately 1.9% lower than the average of the 2000 – 2018 time period.

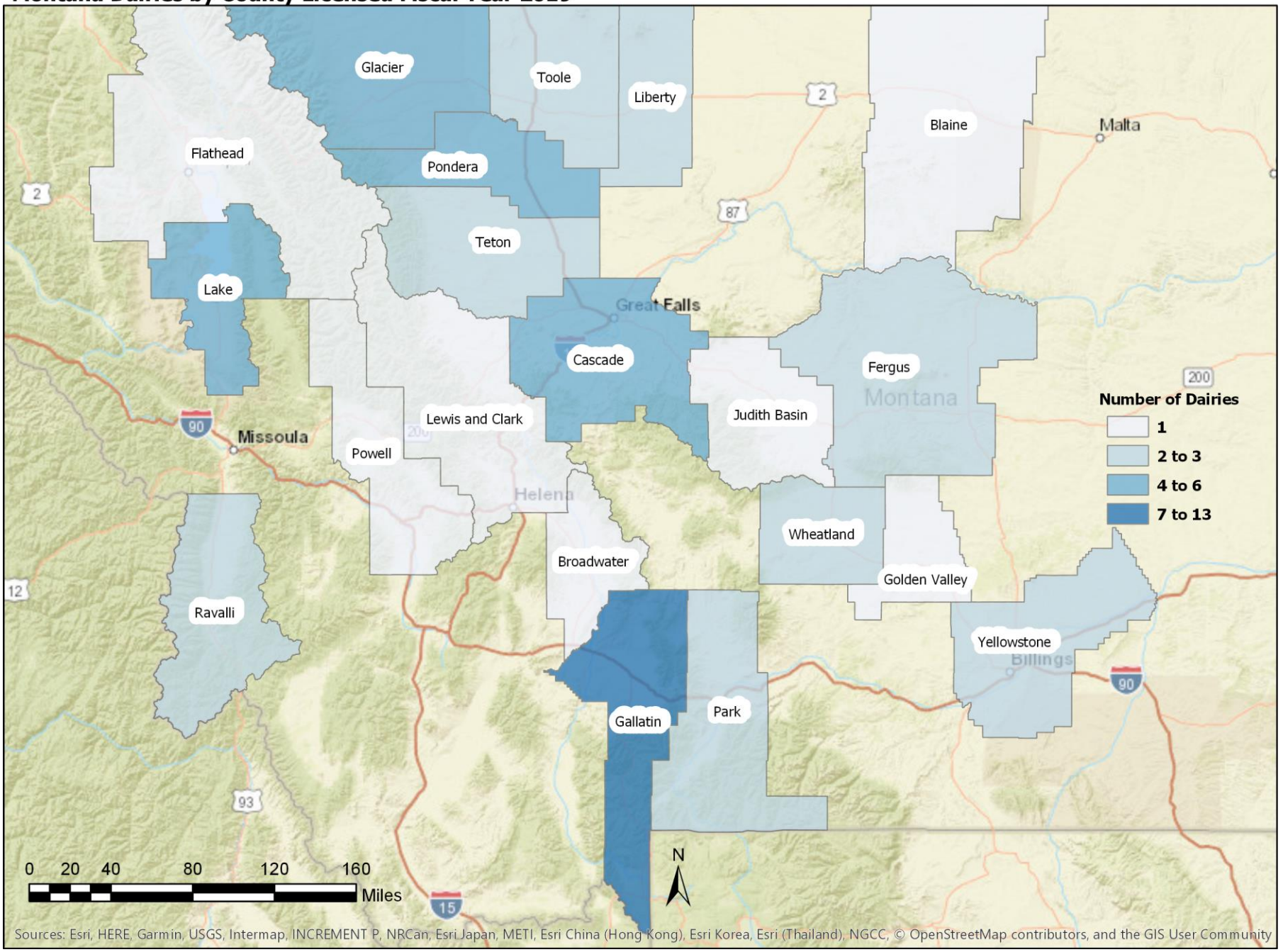



Montana Milk Production (lbs/yr)
2000 - 2018
350,000,000
300,000,000
250,000,000
200,000,000
150,000,000
100,000,000
50,000,000
-
Pounds per Year
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
FY2011
FY2012
FY2013
FY2014
FY2015
FY2016
FY2017
FY2018
Year


Montana Milk Production (lbs/yr)
Fiscal Years 2013 - 2018
300,000,000
297,500,000
295,000,000
292,500,000
290,000,000
287,500,000
285,000,000
282,500,000
280,000,000
Pounds per Year
2013
2014
2015
2016
2017
2018
Fiscal Year


Montana Daily Milk Production (lbs/day)
Fiscal Years 2013 - 2018
820,000
810,000
800,000
790,000
780,000
770,000
760,000
Pounds per Day
2013
2014
2015
2016
2017
2018
Fiscal Year

Montana Dairies by County Licensed Fiscal Year 2019



MILK IMPORTS / EXPORTS

In the discussion of Montana's milk imports and exports, the terms refer to trade between Montana and other states, not international trade.

MILK IMPORTS

Bulk Milk

A provision in the Milk Control Act (81-23-302(10), MCA) specifies that distributors with processing facilities in the state shall *"whenever possible, purchase milk from Montana producers for the processing of products to be sold in this state if milk is available from Montana producers at the price set by the board."* In fiscal year 2018, pool handlers imported 20.9 million pounds of bulk unpasteurized milk, an average of approximately 1.74 million pounds per month. In comparison, Montana producers delivered over 276 million pounds of milk to pool handlers in fiscal year 2018, an average of approximately 23 million pounds per month.

The bulk milk imports are primarily attributed to Meadow Gold – Billings purchasing milk from Wyoming producers, processing the milk, and distributing it to the Wyoming market. Infrequently, pool handlers import bulk milk for other reasons, such as enabling a plant to be shut down during a holiday. Current levels of bulk milk imports are lower than packaged milk exports for any given month. As such, Montana is a net exporter of milk to Wyoming.

Packaged Milk

Packaged milk and dairy products are imported by both out-of-state distributors and in-state distributors. In fiscal year 2018, Montana imported approximately 31.4 million pounds of Class I fluid products and 15.9 million pounds of Class II fluid products.

Estimated Montana Packaged Product Imports – Fiscal Year 2018

Product Description	Imports (lbs)
Class I Fluid Products	31,382,337
Class II Fluid Products	15,940,109
	Imports (lbs milk equivalent)
Class II Uncultured Products *(ice cream & frozen yogurt)*	13,275,290
Class II Cultured Products *(cottage cheese, sour cream, yogurt)*	47,787,938
Class III Products *(cream cheese, cheese, butter)*	443,192,568

MILK EXPORTS

Montana exports include fluid products packaged in Montana's pool plants, bulk unpasteurized milk, and bulk cream collected by pool handlers. Montana's exports of bulk milk and packaged fluid products significantly exceed its bulk milk imports. The bureau estimates that bulk cream exported from Montana could have produced approximately 5.5 million pounds of butter. In fiscal year 2018, approximately 8.1 million pounds of butter were consumed in Montana, almost all of it imported from outside of Montana.

Montana Milk Exports – Fiscal Year 2018

Product Description	Exports (lbs)
Bulk Cream	10,296,932
Bulk Milk	15,976,777
Packaged Fluid Products	107,739,671
Total	**134,013,380**

MONTANA POOL MARKETING SYSTEM

EXPLANATION OF POOLING & QUOTA SYSTEM

Montana Pool System

Montana's pool marketing system allows producers to receive uniform milk prices (for milk of equivalent butterfat content) based on the overall utilization of pool milk received by all of Montana's pool handlers, plus the Montana Correctional Enterprises dairy plant. Without the pool marketing system, an individual dairy's milk price would be completely dependent upon how the receiving plant utilized the milk. By having a pool marketing system, variation in blend prices (for milk of identical butterfat content) for producers delivering to different plants does not occur. Producers supplying an individual plant are not as exposed to the volatility of that plant's marketing "wins" and "losses".

Quota System

Montana's quota system was established in an effort to discourage overproduction that would depress blend prices. Montana's quota system establishes a $1.50/cwt differential in the price of milk produced "in quota" over the price of milk produced "in excess" of quota.

Excess production accounted for 3.66% of production in fiscal year 2018, down from 4.02% in fiscal year 2017. The decrease likely resulted from the sale of quota from dairies that went out of business to dairies that likely used the quota to reduce the portion of their production that was in excess of quota. Dairies that closed in fiscal year 2018 reportedly sold their herds to out-of-state buyers.

Montana's quota system allows for additional quota to be allocated but does not allow for outstanding quota to be reduced. An adjustment (increase) in quota happens when both of the following conditions occur: (1) more than 83.5% of non-surplus quota milk is utilized in Class I and Class II and (2) non-surplus quota milk utilized for Montana Class I and Class II products increases relative to two years prior. In calendar year 2017, approximately 58% of non-surplus quota milk was utilized in Class I and Class II and non-surplus quota milk utilized for Montana Class I and Class II products decreased by 3.44 million pounds compared to 2015. Because of generally steady decline in Montana Class I and Class II utilization and steady levels of production, the last time there was an adjustment (increase) in quota was 2001.

The provisions of Montana's administrative rules allow for quota to be provided to a "new eligible producer" for a portion of production. For a new eligible producer, the following sales to a pool handler are treated as if the milk was quota milk: 20% of sales to a pool handler in April – August and 35% of sales in September – March. If the new eligible producer purchases quota, the described assignment of quota is reduced by the amount of quota purchased. Producers are allowed to transfer quota. Per ARM 32.24.502(3), producers may lose quota if delivery of milk to pool handlers is discontinued for over 90 consecutive days. If such

producer's quota is not transferred within the 90-day period, it is forfeited. Forfeited quota is allocated to all remaining eligible producers on the following May 1st if the total unassigned quota is 500 lbs/day or more.

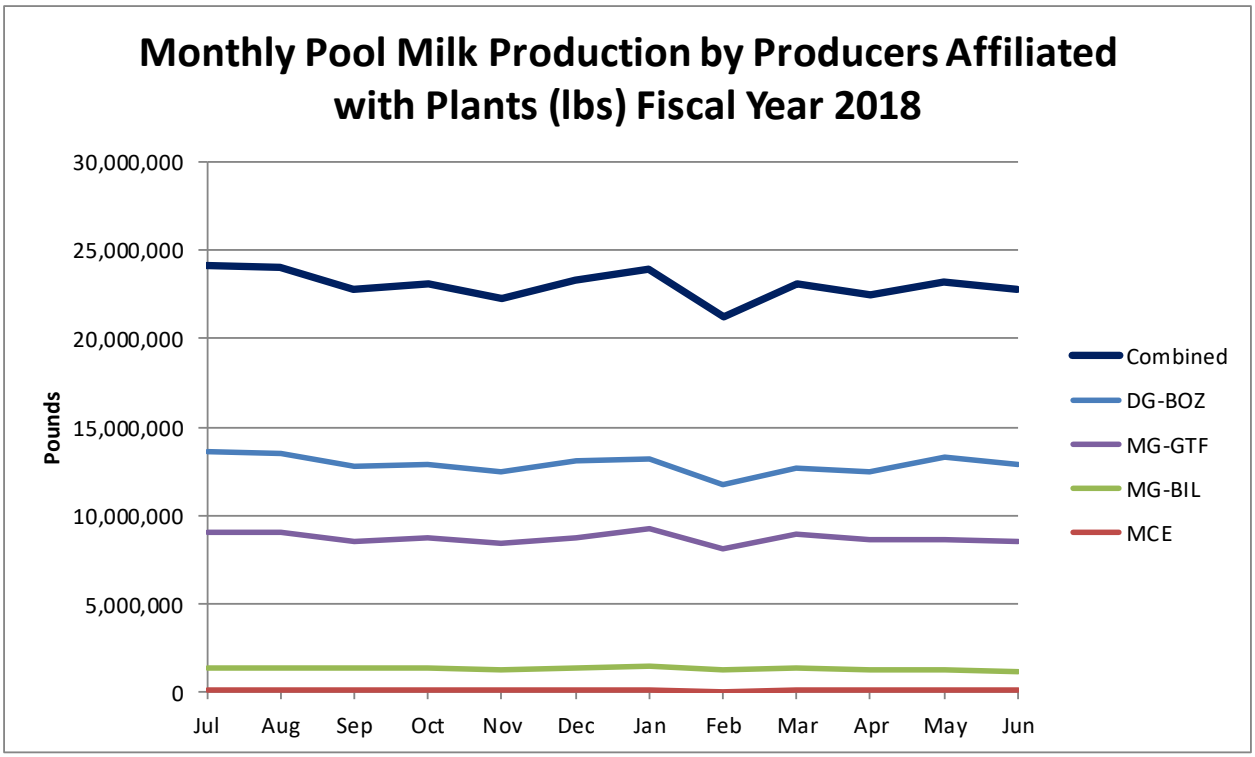
POOL PRODUCTION

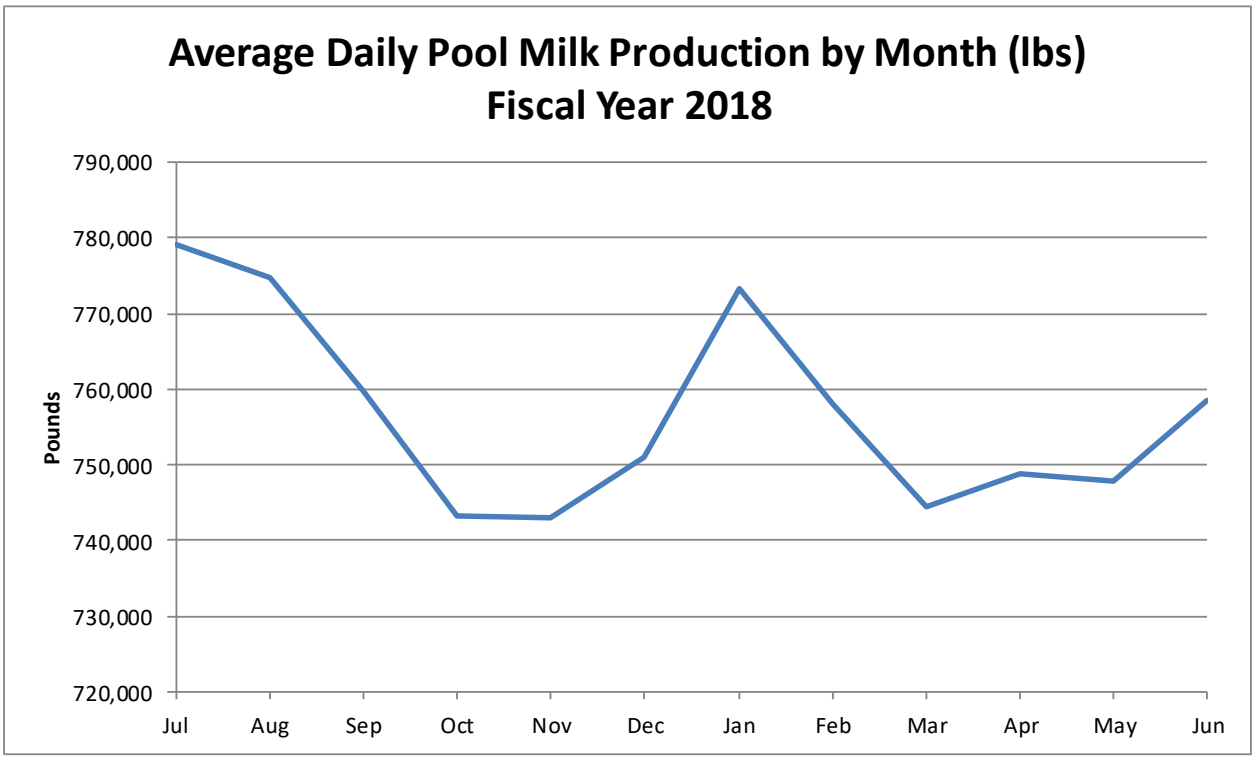
In fiscal year 2018, 59 dairies produced and delivered milk to three pool handlers, plus the Montana Correctional Enterprises plant. The following table shows the Montana milk pool's annual production, average butterfat content, weighted average pool price, and gross receipts for fiscal year 2012 through fiscal year 2018. Pool production in fiscal year 2018 was the lowest in the seven-year period. The butterfat content tied with fiscal year 2014 as the highest in the seven-year period. In fiscal year 2018 (relative to fiscal year 2017), production decreased by 1.5%; the weighted average price decreased by 1.9%; and annual gross receipts decreased by 3.4%.

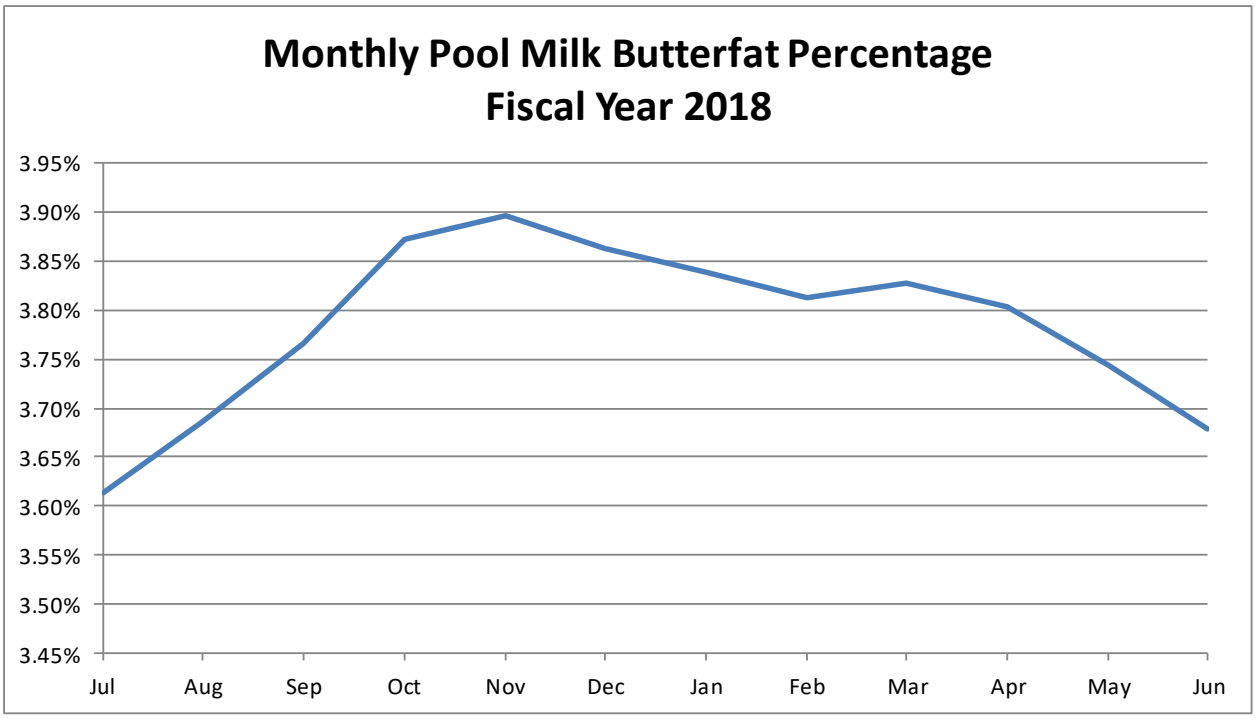
Summarized Pool Information: Fiscal Year 2012 – 2018

Fiscal Year	Production (lbs)	Butterfat (%)	Weighted Average Price ($/cwt)	Annual Gross Receipts ($)
2012	288,601,895	3.69%	$18.71	$53,989,689
2013	288,126,166	3.73%	$19.01	$54,782,758
2014	286,550,985	3.78%	$21.79	$62,446,124
2015	292,232,179	3.73%	$19.93	$58,232,010
2016	287,449,454	3.72%	$15.39	$44,251,077
2017	280,582,982	3.74%	$16.36	$45,912,344
2018	276,252,329	3.78%	$16.05	$44,351,192

The following charts provide information from fiscal year 2018 about pool production on a monthly basis to show seasonal aspects of production. The weight of monthly production is impacted by the number of days of the month, dairy cow productivity, and herd management. The first chart shows milk received from pool producers at each of Montana's pool handlers plus the Montana Correctional Enterprises plant. Dairy cows experience what is referred to as the "spring flush" and produce more milk in the spring and early summer months as the second chart shows. The daily pool production in January 2018 stands out as an anomaly and was higher than expected. Inverse to daily production, butterfat content is highest in the fall months.


Monthly Pool Milk Production by Producers Affiliated with Plants (lbs) Fiscal Year 2018
30,000,000
25,000,000
20,000,000
15,000,000
10,000,000
5,000,000
0
Pounds
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Combined
DG-BOZ
MG-GTF
MG-BIL
MCE

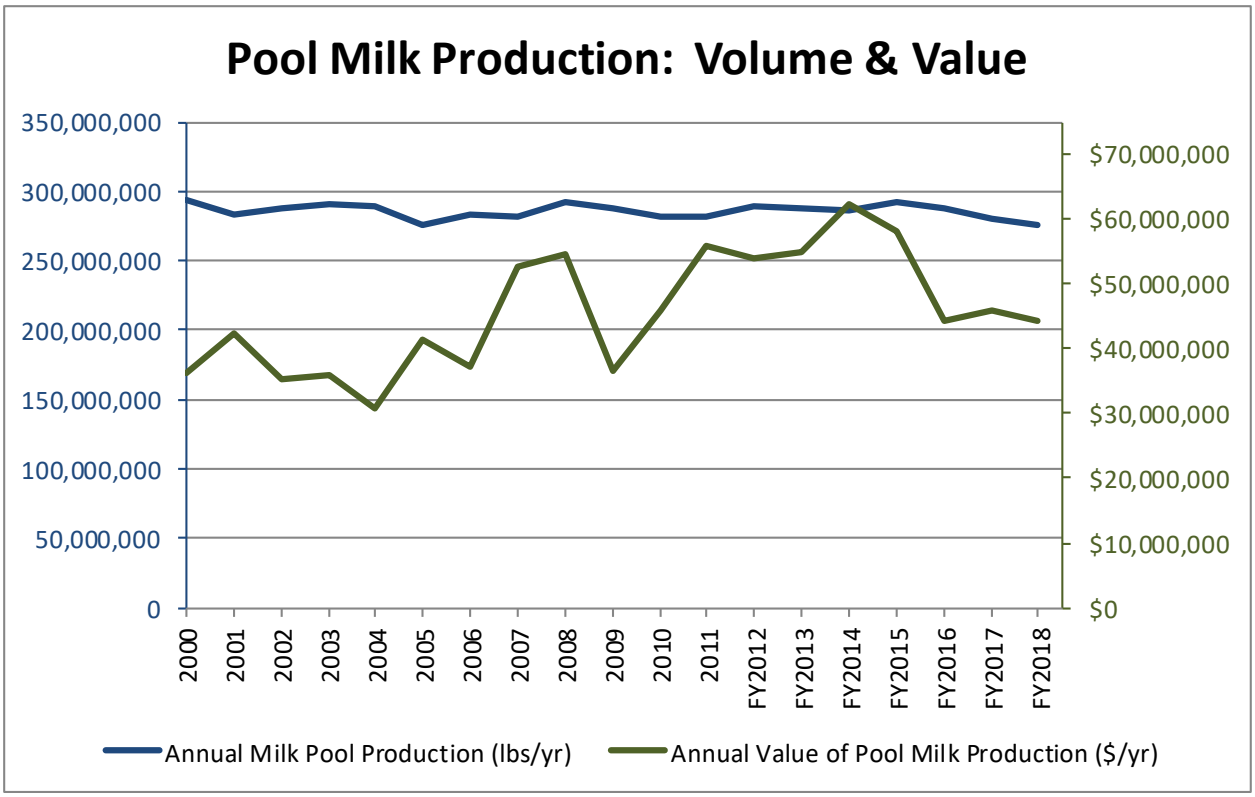

Average Daily Pool Milk Production by Month (lbs) Fiscal Year 2018
790,000
780,000
770,000
760,000
750,000
740,000
730,000
720,000
Pounds
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun

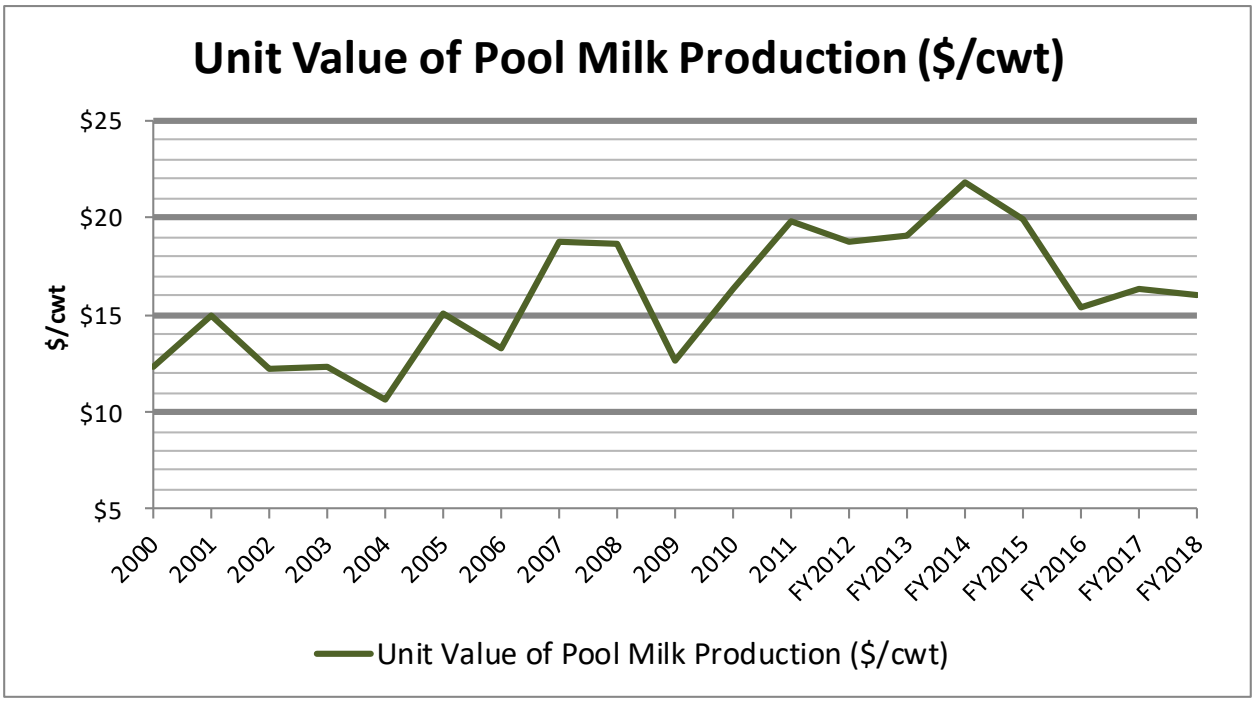


THE PRICE/COST OF POOL MILK

Montana's pool marketing system establishes how pool dairies are compensated for milk. The Milk Control Bureau announces minimum prices prior to the month of production. Pool handlers report milk receipts and utilization information by the 8th day following the month of production; after which, the bureau uses the information to calculate quota and excess prices and calculate amounts to be paid to pool producers.

The following charts provide perspective on volume of pool production, annual value pool milk sold to pool handlers, and annual weighted average unit price paid for pool production from 2000 through fiscal year 2018. Overall, production was relatively stable during the time period. The value of production has trended upward and directly reflects milk prices. Milk prices have roughly followed the path of other commodities (such as feedstuffs) during the time period, increasing dramatically in 2007 and plunging in 2009 before recovering to price levels similar to the 2007 – 2008 time period, setting an all-time record high in 2014, and decreasing dramatically in 2015. The decline in milk prices in 2015 lagged declines of most other agricultural commodities. The value per hundredweight of pool milk production was slightly higher in fiscal years 2017 and 2018 than in fiscal year 2016.





The following table identifies the key factors that determine the value of Montana pool milk. The production and utilization factors result in a poolwide utilization value calculated for butterfat and skim produced by pool dairies.

Key Factors That Determine the Value of Montana Pool Milk

Production & Utilization Factors

- poolwide production and butterfat content
- announced minimum prices for milk and butterfat for each class
- percentage of butterfat and skim utilized in each class

Freight Charges for Intrapool Sales

- the volume of sales of bulk milk between pool handlers and shipment freight rates

Surplus Sale Factors

- volume of milk exported as Class I packaged surplus milk and location of the receiving market (whether the market is contiguous or non-contiguous to Montana)
- volume of milk exported as bulk surplus milk, the sale proceeds received relative to the Montana classified value of the milk, and the freight costs of shipping the milk to out-of-state processors

Adjustments are made to the utilization value of the milk for intrapool hauling costs and surplus milk sales. Intrapool hauling costs are the costs of hauling milk between pool plants and are deducted from the pool utilization value. "Surplus" milk is defined by ARM 32.24.150(42). In brief, surplus milk is milk produced in Montana that is not consumed in Montana, excluding sales of cream to out-of-state markets, inventory, shrink, and dumped milk. Surplus sale factors allow for adjustments to the value of pool milk that reflect market and production dynamics. Surplus milk may be milk sold to out-of-state markets in packaged form or in bulk. The majority of surplus milk is sold as packaged milk to out-of-state markets. Amendments to Montana's administrative rules that went into effect on August 1, 2017 impacted the calculation of the utilization of surplus milk and adjustments to the utilization value for surplus sales.

- Prior to August 1, 2017, packaged surplus milk was treated as a Class III utilization instead of a Class I utilization, and pool handlers paid more than the Montana Class III value for that utilization, resulting in a positive adjustment. Bulk surplus milk was treated as a Class III utilization, even if it was utilized at a Class I plant. Pool handlers paid the value received for the milk, less freight charges. Typically, the net value of bulk surplus milk was less than the Montana Class III utilization value, which resulted in a negative adjustment.
- Since August 1, 2017, packaged surplus milk (fluid milk) has been classified as Class I milk. Pool handlers pay the Montana Class I value less surplus sales adjustments established in rule that depend on whether the market is in a state that is contiguous or non-contiguous to Montana. While the approach to valuing the utilization changed, the final utilization value for packaged surplus milk did not change. The initial utilization value for bulk surplus milk is based on how the receiving plant utilizes the milk. Pool handlers continue to pay the value received for the milk, less freight charges. Typically, the net value of bulk surplus milk is less than the initial Montana utilization value, which results in a negative adjustment.

Dairy Payroll: Quota / Excess Prices

The price an individual dairy is paid for milk sold for a given month is based on whether the milk produced within that dairy's quota right and the extent to which it is over quota. Quota milk production is priced $1.50/cwt higher than excess production. For each dairy, payment is based on the actual butterfat content of the dairy's milk production.

The following table provides a schematic of the sequence for determining prices to be paid to individual dairies for milk produced in quota and milk produced in excess of quota. The quota price shown for milk in the Montana minimum price charts is for milk with 3.5% butterfat. The quota price is determined by calculating the statewide pool's value of skim milk and butterfat (utilization of skim and butterfat multiplied by minimum prices for the associated class of milk); making adjustments to the pool skim milk value for intrapool hauling costs and surplus sales adjustments; making adjustments to the pool skim milk value that maintain a stable balance in the producers' settlement fund; and applying calculations that create a $1.50/cwt differential between the quota milk price and excess milk price (at 3.5% butterfat content).

Skim Portion of Milk	Butterfat Portion of Milk
Classification by Utilization for Skim & Butterfat: I, II, III	
Poolwide Skim Milk Utilization Value *(classified announced prices multiplied by weight of Class I, II, III utilization)* Adjustments to Skim Milk Utilization Value: - Intrapool Sales Freight Costs + / - Surplus Sales Adjustments + / - Settlement Fund Adjustments = Adjusted Poolwide Skim Milk Utilization Value	Poolwide Butterfat Utilization Value *(classified announced prices multiplied by weight of Class I, II, III utilization)*
Adjustments to create Quota / Excess Price Differential ($1.50/cwt)	
Skim & Butterfat Quota / Excess Unit Prices ($/lb)	
Blend Price to be Paid to an Individual Dairy Based Upon Actual Butterfat Content	

Utilization of Pool Milk Receipts

Pool handlers submit reports to the Milk Control Bureau that are used to determine the utilization of pool milk received. These reports show the weight of milk and butterfat used to produce products in the various classes of milk utilization. Ending inventory of packaged milk is reported as a Class I utilization; and ending inventory of bulk milk is reported as a Class III utilization. Milk dumped for reasons that are uncommon and infrequent are classified as Class III utilization. Shrinkage, which is the difference between milk receipts and milk otherwise accounted for, is classified as a Class III utilization; except any shrinkage in excess of two percent of producer receipts is classified as Class I utilization. The purpose of classifying shrinkage exceeding the two percent threshold as a Class I utilization is to encourage pool

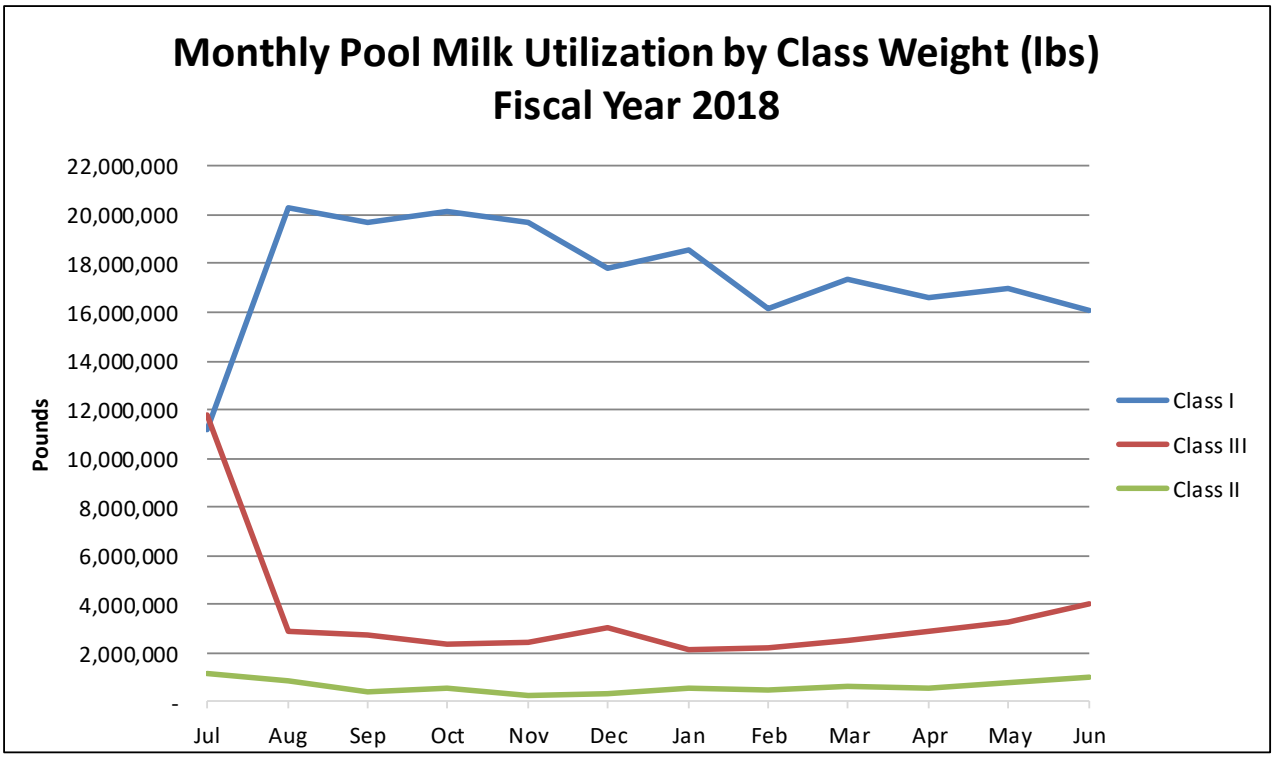
handlers to be efficient in processing milk and to protect producers from bearing a cost for inefficient milk processing. The classification of milk sold in bulk to other pool handlers (intrapool sale) is based on the receiving pool handler's utilization of the milk.

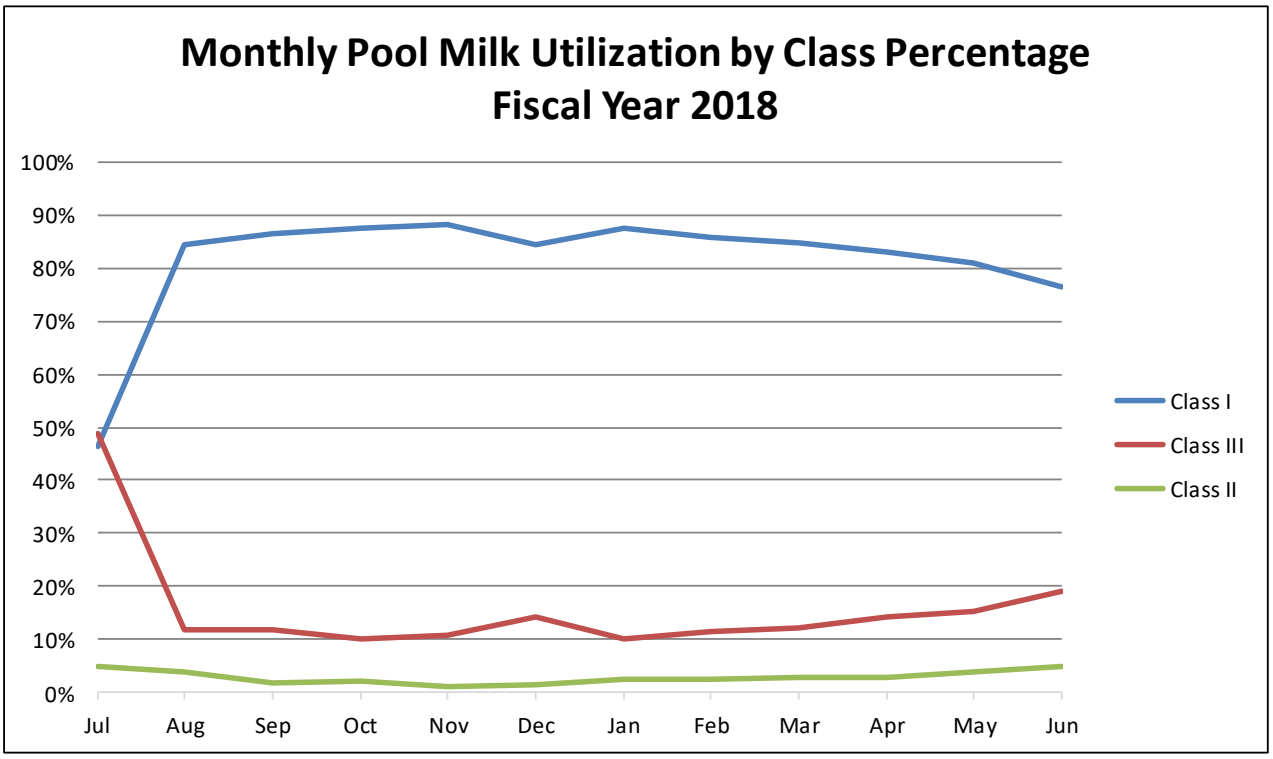
The following table summarizes the utilization of skim milk and butterfat by class, value of utilization, and weighted average unit value.

Fiscal Year 2018 Pool Milk Utilization Volume, Value, Average Unit Value Before Adjustments

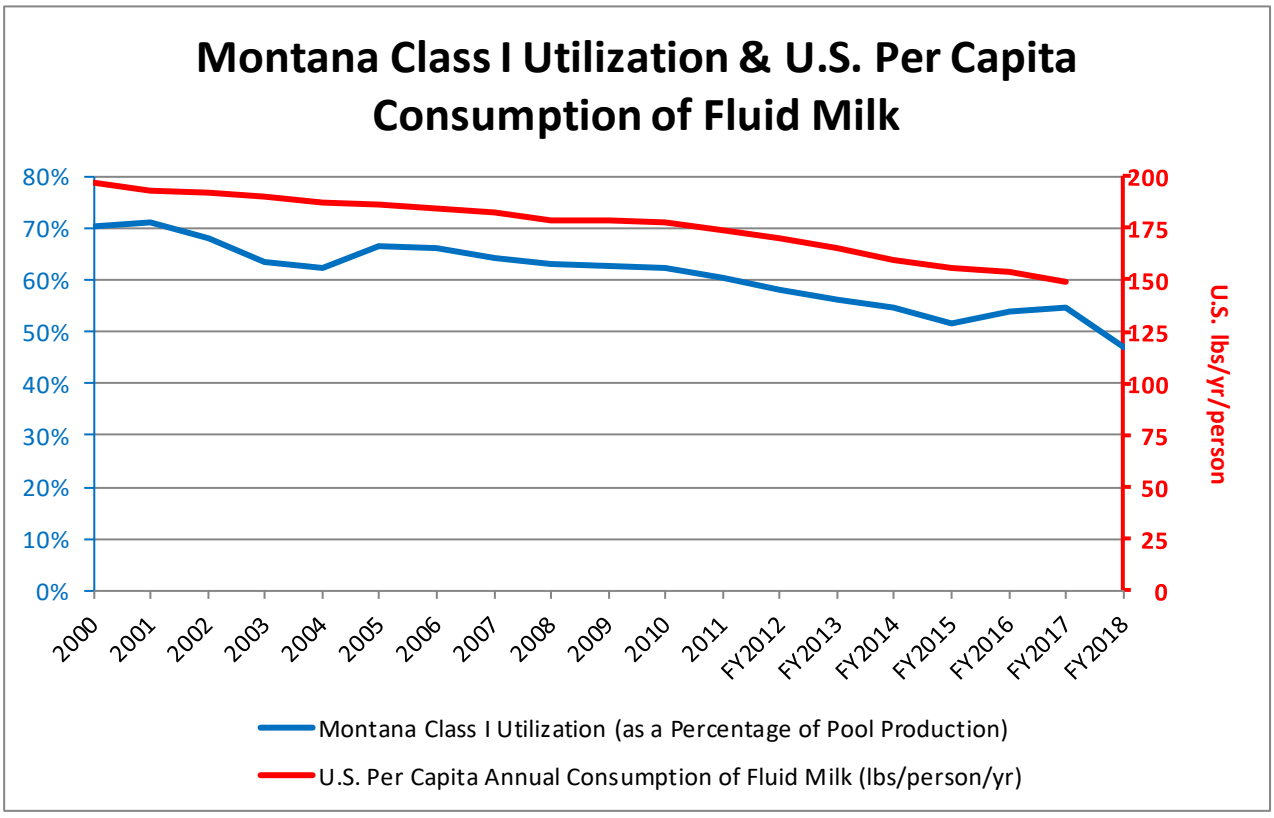
	CLASS I	CLASS II	CLASS III	All Classes – Before Adjustments
Skim Milk Utilization (lbs)	219,713,764	6,392,415	39,698,043	265,804,222
Skim Milk Utilization ($)	$20,099,653	$411,041	$2,260,752	$22,771,446
Skim Milk Utilization – Unit Value ($/lb)	$0.0914811	$0.0643014	$0.0569487	$0.0856700
Butterfat Utilization (lbs)	4,397,633	993,308	5,057,166	10,448,107
Butterfat Utilization ($)	$11,700,323	$2,552,570	$10,290,500	$24,543,393
Butterfat Utilization – Unit Value ($/lb)	$2.6605956	$2.5697665	$2.0348353	$2.3490755

The following two charts show monthly poolwide utilization of milk in terms of pounds per month and percentage of production. Viewing utilization by percentage of production eliminates variation that is based on the number of days in a month. Observing trends in the utilization charts for fiscal year 2018 is more difficult than in prior years, in part because fiscal year 2018 had one month (July 2017) in which all surplus milk was classified as Class III milk. In terms of total utilization and utilization as a percentage of production, Class I utilization peaks in the fall months and is lowest in the spring and summer months. This seasonal trend is influenced by seasonal sales patterns (strongly influenced by school milk sales) and seasonality in milk production. Class II utilization was not affected by the rule change. Class II utilization peaks in the summer months and is driven by sales of ice cream and ice cream mix products.


Monthly Pool Milk Utilization by Class Weight (lbs)
Fiscal Year 2018
Pounds
22,000,000
20,000,000
18,000,000
16,000,000
14,000,000
12,000,000
10,000,000
8,000,000
6,000,000
4,000,000
2,000,000
-
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Class I
Class III
Class II

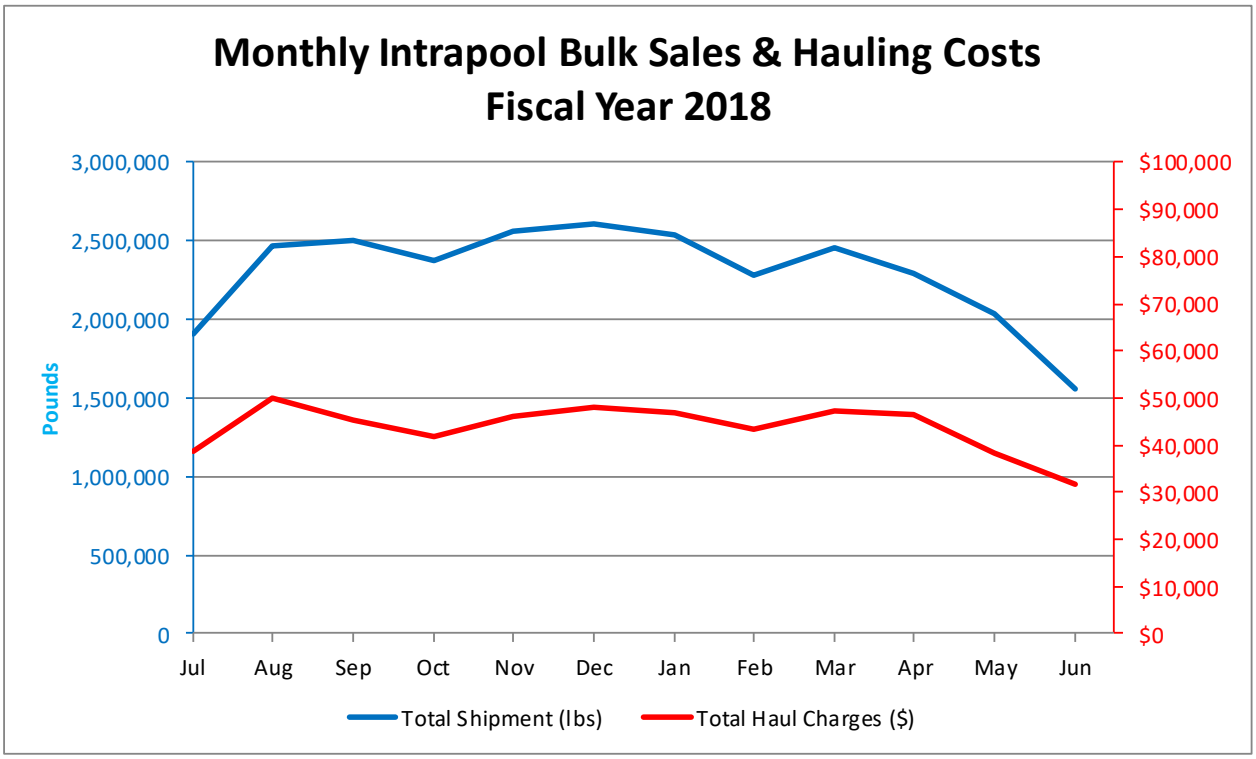

Monthly Pool Milk Utilization by Class Percentage
Fiscal Year 2018
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Class I
Class III
Class II

The following chart shows the percentage of Montana pool milk utilized as Class I milk consumed in the Montana market and the per capita consumption of fluid milk in the United States since 2000. The USDA Economic Research Service was the source of per capita consumption information (http://www.ers.usda.gov/data-products/dairy-data, accessed September 10, 2018). Since 2000, pool production has been relatively stable, and Montana's population increased from approximately 904,000 in 2000 to 1,050,000 in 2017 according to the U.S. Census Bureau. The trend for the percentage of pool milk utilized as Class I milk consumed in Montana is one of decline, which corresponds to the trend of declining per capita consumption of fluid milk in the United States. The percentage of pool milk utilized as Class I milk consumed in Montana has declined from accounting for 70.4% of pool production in 2000 to 47% in fiscal year 2018. Annual U.S. per capita consumption of fluid milk has declined from 196 pounds in 2000 to 149 pounds in 2017. Other potential factors influencing the decline of the percentage of Class I pool milk consumed in Montana include increased availability and possibly market share of ultrapasteurized products (such as organic milk, lactose-free milk, and other specialty or branded products) that are imported into the state; loss of market share to a myriad of new beverage products, including plant-based milk substitutes; and changes in food distribution systems that have led to an increase in out-of-state distributors supplying Montana stores. Class II manufacturing in Montana accounts for a relatively small amount of utilization. Because production has been relatively steady and Montana dairy processors do not utilize a large percentage of pool milk for production of Class II and Class III products, the decrease in the percentage of pool milk utilized as Class I milk that is consumed in Montana is being offset by exports of surplus milk.



Intrapool Sales Freight Costs

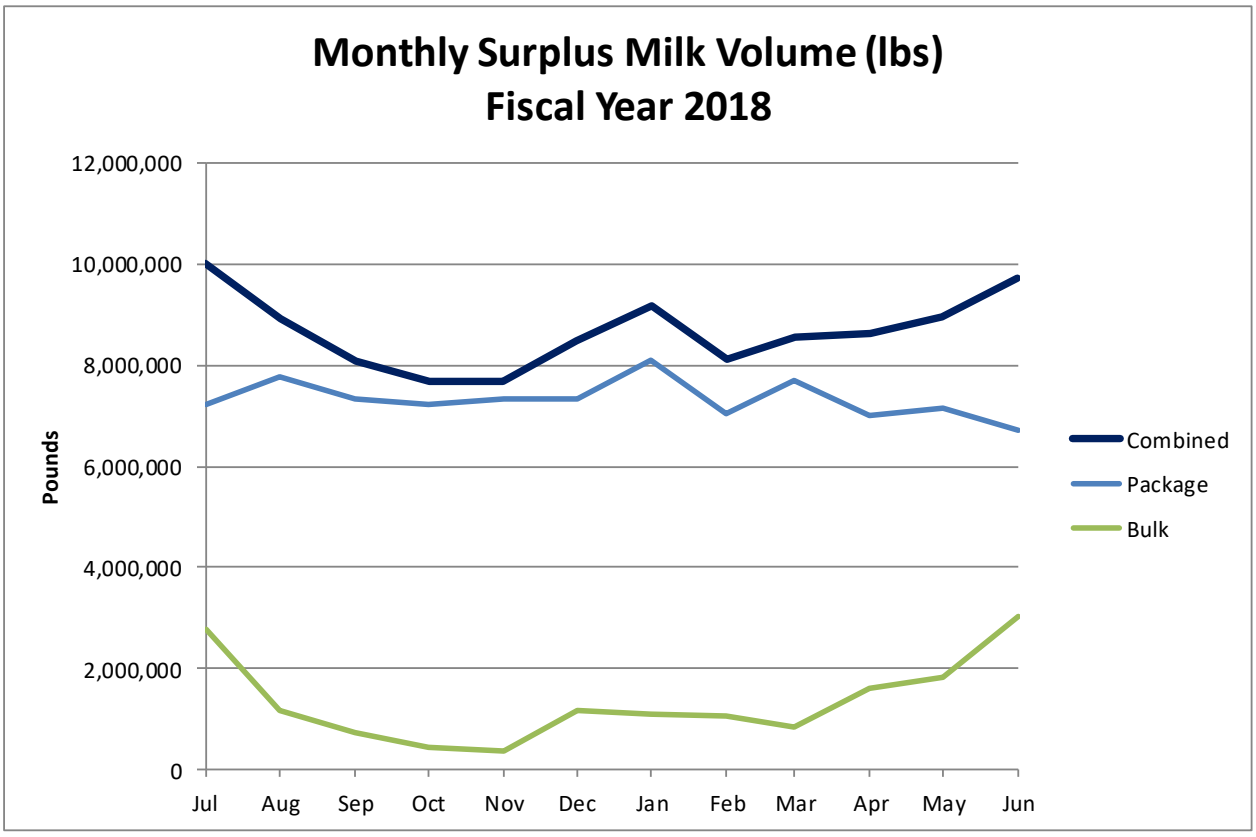
A negative adjustment to the skim milk utilization value is made for transportation charges for shipments of unprocessed pool milk between pool plants. In fiscal year 2018, the skim milk utilization value was reduced by $524,114 for freight associated with 27.6 million pounds of intrapool sales ($1.90/cwt average freight rate). The following chart shows the volume of the intrapool sales and total freight charge for each month in fiscal year 2018. The freight costs were primarily driven by the volume of sales from Meadow Gold – Great Falls to Meadow Gold – Billings, but also are affected by the volume of sales from Darigold – Bozeman to Meadow Gold – Billings, for which a lower freight rate is charged.

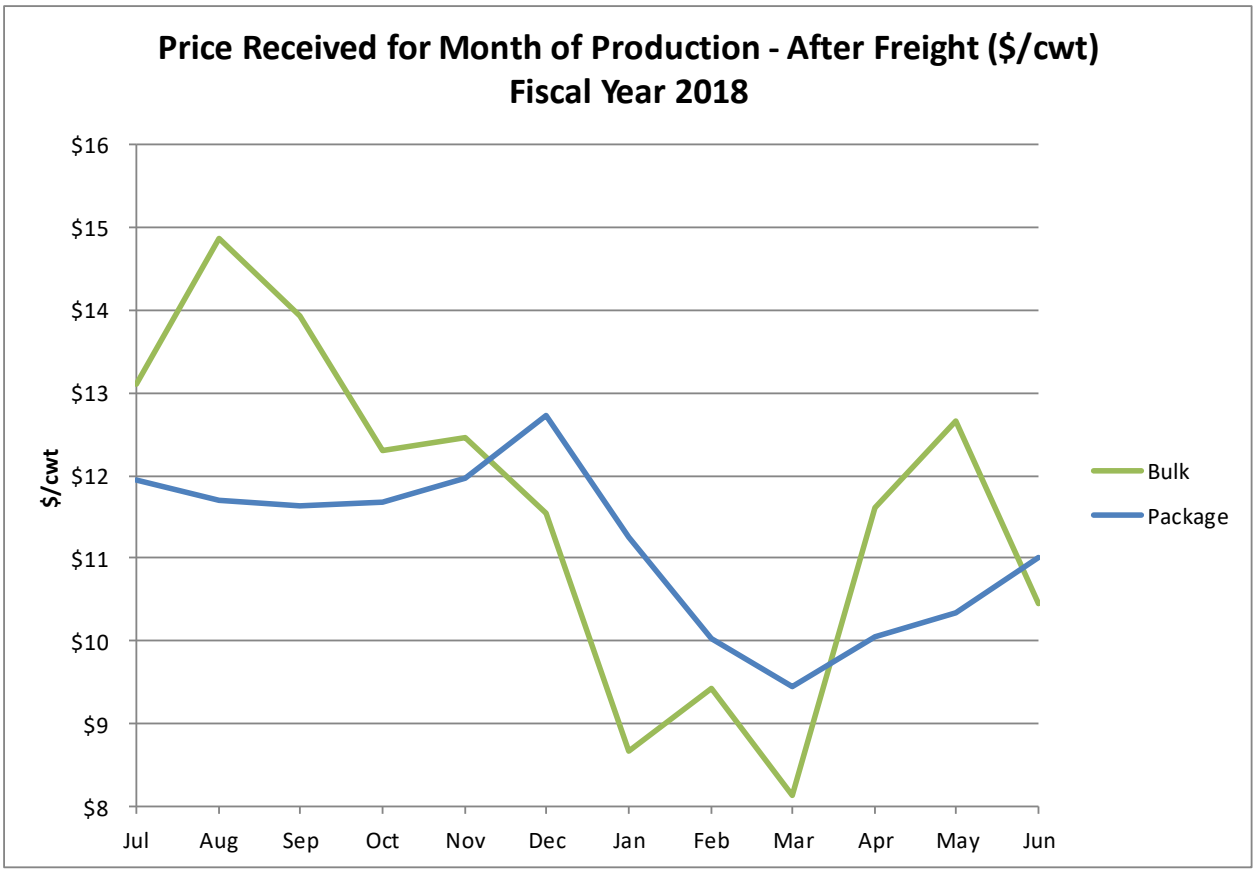


Sales of Surplus Milk

The following two charts show the monthly volume of sales of surplus milk by pool handlers and the unit price received for surplus milk sales after freight costs. Bulk surplus sales peak in the summer months because less Montana milk is utilized for Class I milk sold to schools and because Montana production peaks in late spring to early summer. In the calculation of quota prices, hauling charges are deducted for bulk surplus milk, but not for packaged surplus milk. It is not uncommon for the pre-freight unit price received for bulk surplus milk to exceed the unit price received for packaged surplus milk because butterfat is valuable, and the butterfat content of packaged milk tends to be less than 2%, whereas the butterfat content of bulk milk tends to exceed 3.5%. In most months, the unit price of the package surplus milk likely exceeds the unit price of bulk surplus milk net of freight costs. Additionally, the value of butterfat removed from the milk processed into package surplus milk should be considered and added to the value received for package surplus sales in determining whether package surplus sales or

bulk surplus sales are more economically advantageous to pool producers. Based on the weighted average data for fiscal year 2018, the value of shrink and bulk cream sales associated with the production of a hundred weight of surplus package milk would added roughly $4.50 to the value of one hundredweight of surplus package milk.





Surplus Sales Adjustments

Package Surplus Milk

In fiscal year 2018, surplus sales adjustments for packaged surplus milk reduced the utilization value by $2,278,202 (an approximate $2.59/cwt negative adjustment on approximately 32% of pool production). Except for the month of July 2017, the adjustment was against an original utilization value calculated using Montana's Class I formula. Overall, the adjustment for package surplus milk sales reduced the value of pool production by approximately $0.82/cwt.

- Prior to August 2017, surplus sales adjustments for packaged surplus milk were virtually always a positive adjustment because the base utilization value was based on Montana Class III price formulas.
- Beginning in August 2017, administrative rules became effective that result in sales of surplus packaged fluid milk being classified as a Class I utilization instead of a Class III utilization. The surplus sales adjustment to the associated Montana Class I utilization value became a reduction of $2.55/cwt for sales to markets contiguous to Montana and a reduction of $3.05/cwt for sales to markets non-contiguous to Montana.

Bulk Surplus Milk

In fiscal year 2018, surplus sales adjustments for bulk surplus milk reduced the utilization value by $161,331 (an approximate $1.00/cwt negative adjustment on approximately 6% of pool

production). The adjustment was a negative adjustment every month but May 2018. Overall, the adjustment for package surplus milk sales reduced the value of pool production by approximately $0.06/cwt.

Beginning with August 2017, bulk surplus milk was classified as a Class I, Class II, or Class III utilization depending upon how the purchasing plant utilizes the milk (instead of only Class III). However, for all of fiscal year 2018, the adjustment was calculated by subtracting the Montana Class III value and freight costs from the value received for the sale of bulk surplus milk.

The most significant factor that caused the surplus sales adjustment for bulk surplus milk to be a negative adjustment in fiscal year 2018 is the cost of freight. In fiscal year 2018, adjustments for bulk surplus milk freight charges totaled $432,498, averaging $2.67/cwt for the related shipments. Freight costs are primarily driven by the volume of surplus milk sold in bulk and the freight rates for the various combinations of source and destination of the milk.

In fiscal year 2019, larger negative adjustments for bulk surplus sales will result when the amended price formulas for Class II and Class III go into effect beginning in October 2018. The price formulas will result in higher initial unadjusted utilization values. The utilization value for Class III bulk milk sales may increase by roughly 15% relative to the value that would have been calculated by the old formulas.

Combined Adjustments to Pool Milk Utilization Value

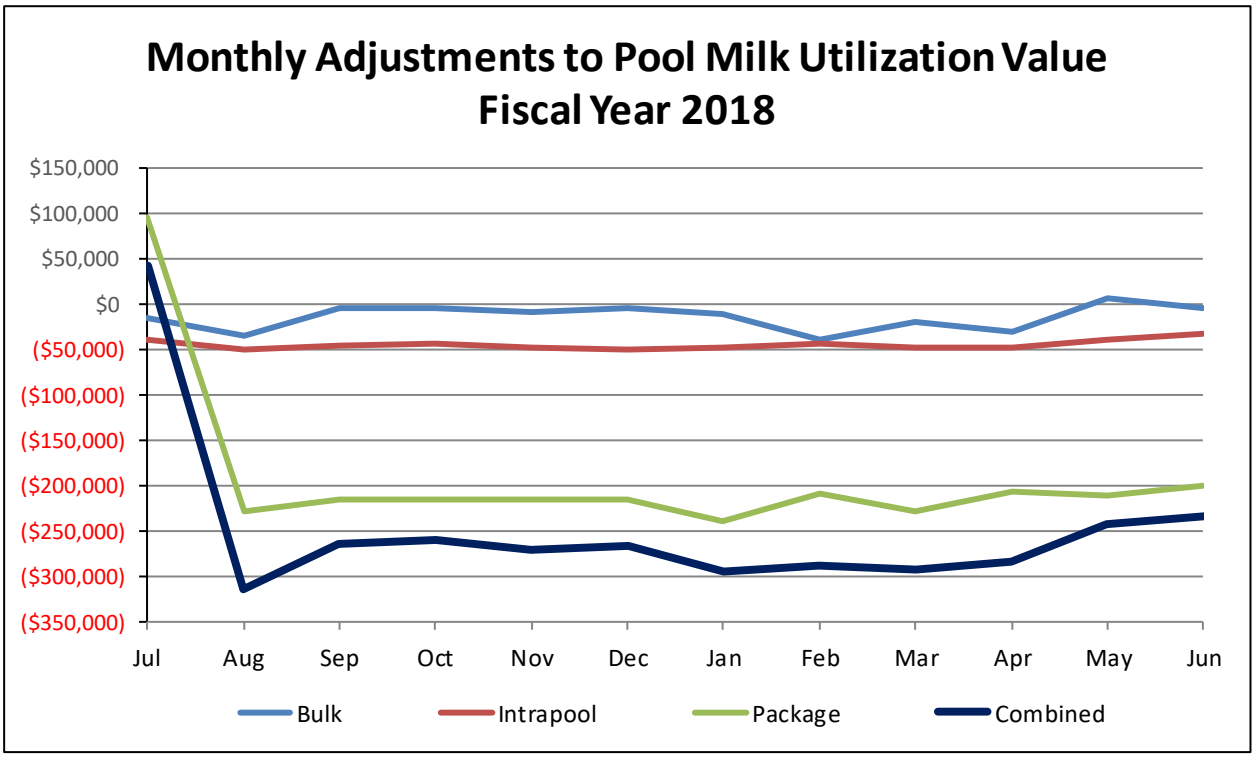
In fiscal year 2018, adjustments made for intrapool sales freight costs, package surplus sales, and bulk surplus sales (including freight) decreased the pool utilization value by about 6.26%. The table below summarizes the adjustments and their impact in terms of dollars per hundredweight of pool production and percentage of unadjusted utilization value.

Adjustments to Pool Milk Utilization Value in Fiscal Year 2018

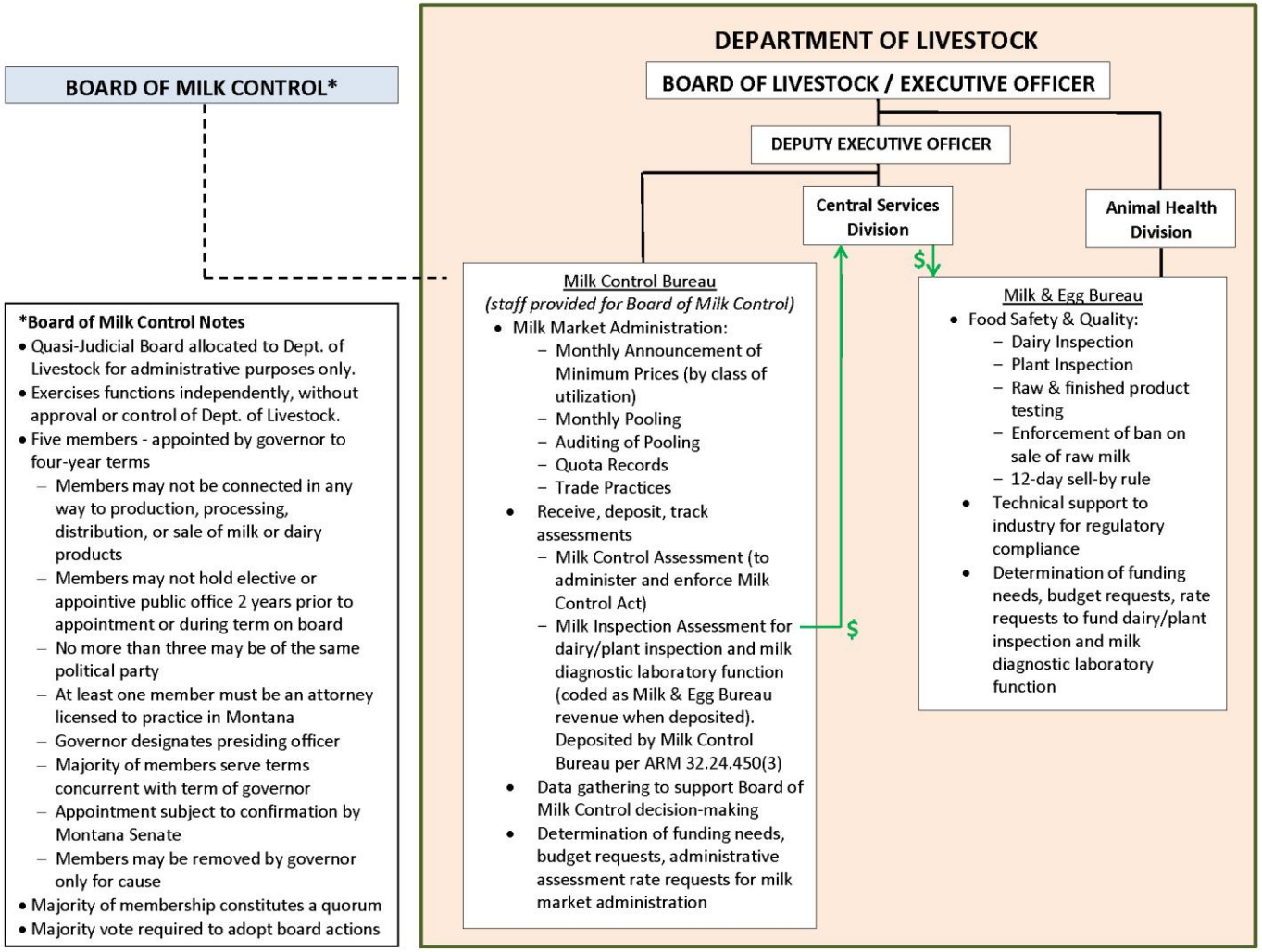
Adjustment Description	Adjustment to Pool Milk Utilization Value ($)	Adjustment to Pool Milk Utilization Value ($/cwt of Pool Production)	Adjustment as a Percentage of Unadjusted Utilization Value
Intrapool Freight	($524,114)	($0.1897)	(1.11%)
Package Surplus Sales	($2,278,202)	($0.8247)	(4.81%)
Bulk Surplus Sales	($161,331)	($0.0584)	(0.34%)
Subtotal	($2,963,647)	($1.0728)	(6.26%)

	Pool Milk Utilization Value ($)	Pool Milk Utilization Value ($/cwt at actual butterfat)
Unadjusted Value	$47,314,839	$17.1274
Adjustments	($2,963,647)	($1.0728)
Adjusted Value	$44,351,192	$16.0546

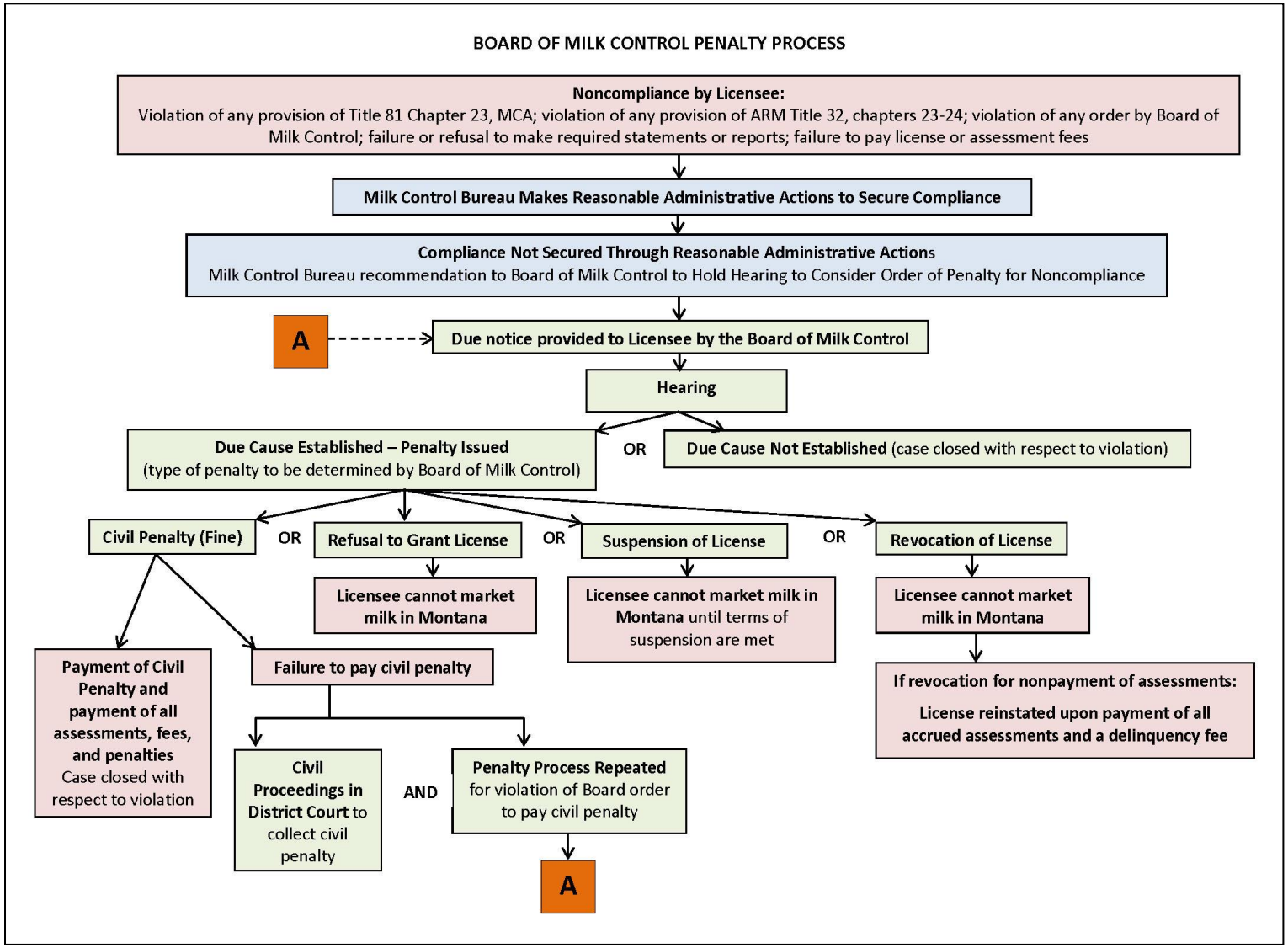
The following chart shows adjustments in fiscal year 2018 to the pool utilization value on a monthly basis for intrapool freight, sales of package surplus milk, and sales of bulk surplus milk.



APPENDIX A – BOARD OF MILK CONTROL & RELATIONSHIP WITH MONTANA DEPARTMENT OF LIVESTOCK



APPENDIX B – PENALTY PROCESS SCHEMATIC



APPENDIX C - REFERENCE PRICES USED FOR CALCULATION OF MINIMUM PRICES